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Marquette University Press  
1131 W. Wisconsin Avenue  
Milwaukee, Wisconsin

JOHN OF ST. THOMAS

# OUTLINES OF FORMAL LOGIC

*Translated from the Latin*

*With an Introduction*

*By*

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imprimí potest

Leo J. Burns, SJ.  
Praepositus Provincialis  
Provinciae Wisconsinensis  
die 8 mensis Septembris, 1955

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John A. Schulicn, S.T.D., censor librorum  
Milwaukiac, die 3 mensis Octobris, 1955

imprimatur

ġ-Albertus G. Meyer  
Archiepiscopus Milwaukiensis  
Milwaukiaē, die 6 mensis Octobris, 1955

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Marquette University Press

1955

Third Printing, 1975

ISBN 0.87462-208-5

Library of Congress Catalogue Card No. 55-9018

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# JOHN OF ST. THOMAS *OUTLINES OF FORMAL LOGIC*

## TRANSLATOR'S INTRODUCTION

John of St. Thomas, though he belongs to the 17th century, continues in the line of Mediaeval Scholasticism both in thought and method of presentation. For this reason his text on fundamental Logic is included in the series of Mediaeval Philosophical Texts in Translation. Also, his detailed analysis of logical problems represents the top Scholastic development of Aristotelian Logic.

### 1. *Life and Works of the Author*

John of St. Thomas is the religious name of Jean Poinsot<sup>1</sup>. He was born in Lisbon, July 11, 1589, of a Spanish mother. His father, most probably of Belgian origin, was in the employment of Archduke Albert of Austria<sup>2</sup>. Jean Poinsot had his undergraduate work at Coimbra, under the Jesuits, and his course in theology at Louvain under the Dominican, Thomas de Torres de Madrid. Jean's great admiration for St. Thomas, the determining motive of his life, led him to enter the Dominican Order in 1612, when he was 23. Immediately after his novitiate he began teaching his younger religious confreres at the College of St. Thomas at Alcalá. John of St. Thomas taught philosophy and theology for 30 years, the last eleven being professor of Theology of St. Thomas in the University of Alcalá. In 1643 Phillip II of Spain chose him for his personal confessor, and he left Alcalá for Madrid. The following year, during an expedition to Catalonia, he caught fever and died, June 17, 1644, at Fraga in Aragon, at the age of 55.

The writings of John of St. Thomas are extensive in theology and philosophy; some smaller ascetical works were written in Spanish. His philosophical works were published as a unit during his lifetime, under the title, *Cursus Philosophicus Thomisticus*<sup>3</sup>, at Madrid and Rome in

<sup>1</sup>Two other men about this time had the same name in religion. One was Daniel Rindfleisch (1600-1631), a Polish Protestant who was converted and entered the Dominican Order at Paris. The other, a Spaniard belonging to the Order of Discalced of the Most Holy Trinity for Redemption of Captives. He taught theology at Salamanca in the college of his Order, Cf. B. Reiser, O.S.B., *Cursus Philosophicus*, Vol. I, Turin, 1820, p. vii.

<sup>2</sup>*Dictionnaire de la Théologie Catholique*, VITI, col. 803-808. This is the best readily available life of John of St. Thomas.

<sup>3</sup>The title, *Cursus Philosophicus Thomisticus*, does not appear on any of the editions prepared by John of St. Thomas. He uses the titles of each work, e.g.



1637, at Cologne in 1638; later at Lyons 1663, Paris 1883. The two big divisions of his philosophical writings are: *Ars Logica* and *Naturalis Pphilosophia*. The Logic has two main divisions: *Prima Pars, De Dialecticis Institutionibus, Quas Summulas Vocant* (first published at Alcala, 1631); and *Secunda Pars, De Instrumentis Logicalibus Ex Parte Materiae* (first published at Alcala, 1632). His Natural Philosophy is divided, according to the plan of John of St. Thomas, into four parts: *Prima Pars, Quae De Natura In Communi Ejusque Affectionibus Disserit* (first published at Madrid, 1633); *Secunda Pars, De Ente Mobili Incorrputibili\** which is not found in any edition; *Tertia Pars, De Ente Mobili Corruptibili Agit Ad Libros Aristotelis De Ortu et Interitu, Cum Decem Tractatibus de Meteoris* (Alcala, 1634); *Quarta Pars, Quae De Ente Mobili Animato Agit Ad Libros Aristotelis De Anima* (Alcala, 1635).

The theological writings of John of St. Thomas were published from 1637 to 1667. These works were prepared as a commentary, in 8 volumes, on St. Thomas' *Summa Theologica*. The first three tomes were edited by John of St. Thomas and the next four by his close friend, Fr. Didaco Ramirez. They were published at Alcala, Madrid, and Lyons from 1637-1663. The eighth volume was edited from the author's manuscripts by Foncis Cambefis and James Quetif, and published at Paris in 1667, at Lyons, 1674. Louis Vives published the collected theological writings, in ten volumes, under the title, *Cursus Theologicus Thomisticus*, at Paris, 1888. Besides his strictly theological works, John of St. Thomas wrote three shorter ascetical and apologetic works in Spanish. The best known of these is *Explication de la Doctrine Christiana y la Obligación de las fieles en Creer y Obrar*, which was translated into Italian and French.

## 2.

### *Disciple of St. Thomas*

John of St. Thomas, both by name and preference, was a disciple of St. Thomas Aquinas. All the major positions of St. Thomas were re-occupied by his disciple. Thus, he was a Christian realist who held: 1) that there is an objective world; 2) that man can have certain knowledge about this objective world; 3) that man must direct his life by his knowledge of the objective world; 4) that revealed truth is an aid, not a hindrance, to knowledge of the world and reasonable direction of human life. But to say that John of St. Thomas followed his master in being a Christian realist is far from describing his philosophical position.

His devotion to St. Thomas Aquinas went much further than that.

"*Artis Logicae Pars Prima, Naturalis Philosophiae Prima Pars.*" Cf. Reiser, *op. cit.* pp. xii, xiii.

\* *Ibid.* p. xv. Reiser does not accept the division used in the *Dictionnaire de la Théologie Catholique*, VIII, p. 804.

The dominant motive of his life was to explain and develop the teaching of St. Thomas. He tells us, as a theologian talking to theologians, what are the five marks of a true disciple of St. Thomas<sup>5</sup>. They are:

1. When there is doubt about what St. Thomas means, the true meaning, and therefore true discipleship, is found in the continuous succession of disciples who held firmly to his doctrine. Thus the line of succession includes: Hervaeus, Capreolus, Cajetanus, Ferrariensis, Victoria, Soto, Flandria—and now of course John of St. Thomas.
2. The proper attitude and approach to St. Thomas' doctrine. The disciple, instead of disagreeing captiously or being lukewarm in explaining, is on the contrary energetically set on defending and developing the teaching of St. Thomas, even though he may, for lack of insight, misunderstand the master.
3. The true disciple, because he is a disciple, in his work of explaining, stresses more the glory and brilliance of the master's teaching than the glory of his own opinion or the credit of novel opinions.
4. The true disciple not only follows St. Thomas and comes to the same conclusions; he also strives to explain Aquinas' reasons and to show how surface inconsistencies are reconciled.
5. Discipleship is shown to be more sincere by greater unity and agreement among the disciples of St. Thomas.

The contemporary reader may find these *signa discipulatus* much too restrictive. However, you must recall that John of St. Thomas, a theologian, was speaking of St. Thomas, the saint and theologian especially singled out by the Church as teacher of the faithful. On this basis, a student of Catholic theology would supposedly want to be, in some sense at least, a disciple of St. Thomas. The five *signa* are intended to show him how a true disciple would carry on his work. And they do just this. Any man who would exhibit these five *signa* would be a disciple of St. Thomas. At this point, we need not go into the question: Must a Catholic theologian be such a "true disciple" of St. Thomas? We need only say that the answer of John of St. Thomas would be emphatically affirmative.

Now for his philosophy. Is he, in general, a disciple of St. Thomas Aquinas? Undoubtedly. Does he, in his philosophy, exhibit the five marks of discipleship? Certainly not in the same explicit way that he does in theology. Following the lead of his master, his philosophical works are written, for the most part, as commentaries on the texts of

<sup>5</sup> *Cursus Theologicus, Tractatus de Approbatione et Auctoritate Doctrinae D. Thomae*, Disp. II, art. 5, "*Quae ad veram intelligentiam et discipulatum D. Thomae conducant*," Desclée, raris, 1931, Tome I, pp. 297-301.

Aristotle, not on the texts of St Thomas; his theological writings are commentaries on St. Thomas' text. Yet even when explaining Aristotle's teaching, he does not cease to be a disciple of St. Thomas. A case in point, and one the reader can check in this translation, is his explanation of the "Verb."<sup>6</sup> He begins with Aristotle's definition, which St. Thomas accepted. But when he explains the meaning of "is," he agrees with St. Thomas that it always signifies "*esse*," whereas Aristotle said that "is" only implies copulation and does not have signification.<sup>7</sup> Whether John of St. Thomas was aware or not that he was, with St. Thomas, adding to Aristotle, is not indicated in the passage. It would not be surprising if he were not aware of it, since he did not have at his disposal the historical studies that make this addition clear. But we know whom he would have followed had he been forced to choose between Aristotle and St. Thomas.

It would be a serious mistake to think that John of St. Thomas merely repeated his master. Recall that the true disciple had to "explain and develop the teaching of the master." And on this basis, John of St. Thomas is generally ranked close to the top among the disciples of St. Thomas. That he explained and developed Thomism is not open to doubt. The critical brilliance of his analytical mind is too patent on every page he wrote. But the further question arises: Did he, in his explanation and development, change or modify the philosophical teaching of St. Thomas Aquinas? The evidence for an answer to this question is not at hand; we lack the historical studies on John of St. Thomas? Yet there is good reason for saying that the disciple himself is a master in Logic. Perhaps this very fact may cause the historian to wonder if his sheer excellence in Logic might not have produced significant modifications in the teachings of St. Thomas.

\* *Outlines of Formal Logic*, Bk. I, chap. 6, below p. 39.

<sup>6</sup> Aristotle, *De Interp.* 3, 16 b 25.

<sup>8</sup> Some points have been indicated. M-D Chenu, O. P., *Introduction à l'Étude de Saint Thomas D'Aquin*, Institut D'Études Médiévales, Montréal, 1950, p. 280: "La *Summa totius logicae*, non seulement apocryphe, mais pénétrée de conceptualisme nominaliste, a fâcheusement alimenté la logique de Jean de Saint-Thomas, et celle de beaucoup d'autres thomistes à sa suite." The same thing is said by L. Lachance, O. P., "Saint Thomas dans l'Histoire de la Logique," *Études d'Histoire Littéraire et Doctrinale du XII<sup>e</sup> Siècle Première Série* Ottawa, 1932, p. 62, n. 1. L-M Régis, O.P., "La Philosophie de la Nature," *Philosophie 1*, Collège Dominicain, Ottawa, 1936, p. 140, says that the development of the doctrine of three degrees of abstraction by John of St. Thomas is a systematization and explication of St. Thomas; "et cette explicitation est, à mon avis, plutôt orientée vers *Yens logicum* que vers *JV<sub>m</sub>•reale*." W. R. O'Connor, "The Natural Desire for God in St. Thomas," *Arch Scholasticism*, 14 (1940), p. 225, criticizes John of St. Thomas for his teaching on the natural desire for God. H. de Lubac, S.J., *Surnaturel*, Aubier, Paris, 1945, p. 138, says that the doctrine that man has no natural potency for the vision of God became classic with John of St. Thomas, though it is far from St. Thomas' teaching. G. F. Klubertanz, S.J., "A Note on the Thomist Theory of Sensation," *The Modern Schoolman*, 26 (1948-9), pp. 323-331, raises a question about the cause of the intentional *esse* of sensation according to Cajetan and John of St. Thomas in comparison to St. Thomas.

The *Ars Logica* is a long work of 839 double-columned pages, some 280,000 words. Its two main divisions are: Formal Logic and Material Logic. As John of St. Thomas puts it: "In the *first* part we deal with everything that belongs to the form of the art of Logic and to prior resolution. These are the things Aristotle dealt with in *De Interpretatione* and *Analytica Priora*, and are customarily taught beginning students in Outlines. But in the *second* part we shall deal with everything that belongs to logical matter, or to posterior resolution, especially as it is in demonstration, towards which Logic is principally ordered."<sup>8</sup>

The First Part contains a short text of formal Logic suited for beginners, followed by an explanation for advanced students (in 8 "*Quaestiones Disputandae ad Illustrandum Difficultates Aliquas Huius Textus*," subdivided into 29 articles) of the more difficult points of the short text.<sup>10</sup> Only the short text for beginners is translated in the present volume.

The Second Part is "longer and more diffuse because the matter of any art normally has more things demanding consideration than the form does."<sup>11</sup> The proper matter of the art of Logic will be propositions in which a demonstration can take place. If strict demonstration requires reduction to principles known per se, then the propositions strictly demonstrable must be those that are necessary and per se connected. Now, we know that contingent predicates give contingent propositions. For necessary propositions we need essential or proper predicates. Here then we have a means for discovering necessary matter: unfold the ordered lines of the predicaments, in which all things are reduced to their top genera, and where for each predicament is given the higher and lower predicates between which an essential connection is discovered. However, since predicaments cannot be known without the predicables, which are the modes of predicating essentially or accidentally, these too must be matter for the art of Logic. Thus the matter of Logic contains these three: 1) predicables, the modes of predication; 2) the ten predicaments, the classes and top genera to which all natural things and their essential predicates are reduced; 3) the forming of per se propositions and strict demonstrations!<sup>12</sup> These, then, are the three divisions of Material Logic.

<sup>8</sup>*Ars Logica, Praeludium Secundum*, p. 5. col. 2, edit. Reiser. See below, p. 26. Cf. also *Prooemium Secundae Partis*, p. 250, col. 1.

<sup>10</sup>The Reiser edition also gives, in an appendix, the Lyons edition of those articles of the "*Quaestiones Disputandae*" which differ notably from the 1637 Roman edition. The main difference, as Reiser indicates, is that the Lyons edition follows more rigidly the scholastic form of disputation.

<sup>11</sup>*Ibid. Prooemium Secundae Partis*, p. 250, col. 1.

<sup>12</sup>John of St. Thomas is quite aware that in discussing predicaments, universals and predicables he touches on metaphysics. "Therefore, these ought to be treated briefly and moderately by the logician" (*Prooemium Secundae Partis*, p. 251. col. 1). But proper consideration of his questions demanded that he go beyond

For the first, John of St. Thomas bases his teaching on the text of Porphyry. For the last two, on the texts of Aristotle. And as a sort of introduction to the whole of Material Logic he considers (in 5 questions and 24 articles) the nature of the science of Logic itself. The most fundamental parts of his Material Logic have been translated by Yves R. Simon, John J. Glanville, and G. Donald Hollenhorst.<sup>13</sup>

According to John of St. Thomas, and to Aristotle and St. Thomas before him, Logic deals with the operations of reason. Its "function is to direct the reason lest it err in the manner of inferring and knowing."<sup>14</sup> The natural divisions of Logic then follow the different kinds of mental operations. Thus Formal Logic is divided into three books: 1) what pertains to the simple apprehension (first operation of the mind); 2) what pertains to judgment (second operation); 3) what pertains to reasoning and inference (third operation). Material Logic too, though indirectly of course, is divided according to the mental operations. Its direct object is the matter, taken generally, that the mind deals with, *i.e.* necessary predicates and their connecting lines. Still, the manner of predicating, the reduction of all essential predicates to the ten predicaments, and the forming of *per se* propositions and strict demonstrations are mental operations even when they depend on the matter known.

#### A. Logic a Liberal Art and Speculative Science

As to the nature of Logic,<sup>15</sup> John of St. Thomas concludes that Logic is both a science and an art. A science, in the strict sense, demonstrates by reducing its conclusions directly to first principles that are indemonstrable; or, if the science is subalternate, directly to principles borrowed from another science and through these implicitly to first principles. Logic is the first kind of science; it reduces its conclusions to the first indemonstrable principles. For example, it shows that the conclusion, *Contraries cannot be true at the same time*, is founded on the principle

the issues of the *Analytica Posteriora*. "Nor is this surprising, since it is common that more things are employed in preparing a thing than in its final completion, towards which it is ordered. For instance, in matters intellectual you come, by several steps, to the final statement that is extremely brief; and, in things of nature, substantial generation takes place instantaneously, while accidental alteration, over considerable time, disposes to this generation" (*Ibid.* p. 251, col. 1).

<sup>13</sup> This valuable translation, *The Material Logic of John of St. Thomas. Basic Treatises*, is currently being published by the University of Chicago Press, with release planned for early 1955. The *Basic Treatises* deals with the following: nature and object of Logic; the universal; univocity, equivocity, analogy; predicamental being; substance, quantity, relation, quality; cognitions and concepts; demonstration and science.

<sup>14</sup> *Ibid.* *Praeludium Secundum*, p. 5, col. 1. See below p. 25.

<sup>15</sup> See the Simon, Glanville, Hollenhorst translation, *Basic Treatises*, questions on the nature and object of Logic.

of contradiction.<sup>19</sup> At the same time, Logic is an art because it is “right reason in things to be done,” which is what art is. The two requirements of any art are: 1) that the matter have some indifference, making it capable of regulation and ordering; 2) that the form regulate the matter by certain and exact rules. Now the matter Logic deals with are the operations of the mind, which can proceed with or without error, resulting in bad reasoning or good. The acts of reasoning, then, are subject to regulation. And the rules of Logic are certain, definite and immutable; for instance, the rules of syllogism.<sup>17</sup> Logic, therefore, is an art at the same time that it is a science.

Logic of course is not a servile art, one that works in external things and results in an external product. Such an art, precisely because it works in external things, is dependent on these external things. Logic is a liberal art, one that orders internal things; it is less dependent on external things and therefore more free.<sup>18</sup> And, as a science, Logic is not formally practical. Logic, it is true, discovers rules that are useful for directing thought. But the traditional distinction between practical and speculative science is not that one is useful and the other not. Practical knowledge is an account of how to do or make. It not only manifests truth, it also tells how to get a particular thing into existence. Its principles, then, are in the line of composition, of getting being into existence. Whereas speculative knowledge is an account of what is. It supposes that its object is and then tells what is true about the object, by reducing it to what is already known. The principles of speculative knowledge are in the line of reduction, not composition;<sup>19</sup> they manifest truth and dispel ignorance. And this is what Logic does. For Logic excludes error, and thereby ignorance, from the mind's operations.<sup>20</sup> True, it directs a doing, but the doing is speculation itself. Logic must therefore be called a speculative science,<sup>21</sup> for its end is to know. Were it not speculative, it could not be a *liberal* art.<sup>22</sup>

#### B. The Formal Object of Logic

To be a distinct science, Logic must have its own distinctive object. This object, in general, will be the operations of the mind. But to say this is not enough. Every mental operation has two clearly different aspects. First, an act of knowing is a modification of the knower; this is its natural or physical aspect. Second, an act of knowing is also representative of an object, since it looks towards or tends towards something

\*« *Ibid.* p. 257, col. 1.

<sup>11</sup> *Ibid.* p. 257, col. 2.

<sup>18</sup> *Ibid.* p. 257, col. 2.

« *Ibid.* p. 269, col. 2.

« *Ibid.* p. 273, col. 1.

*Ibid.* p. 273, col. 1.

<sup>22</sup> *Ibid.* p. 272, col. 1.

known; this is its intentional aspect. Obviously, the more important aspect of knowledge is its intentional character. Still this does not tell us too much about Logic, since all knowledge is intentional. For instance, when I see a child and report: *This child is pretty*, this act of knowing looks to what is outside, *i.e.* the pretty child. The child, existing outside, exists as pretty; when I make the statement above, the child then stands in my mind as pretty. The pretty child has two ways of being; being in nature, where it is its own subject of existence; and being in a mind, where it is not the subject of its own existence. This being known by a mind we shall call the child's intentional existence; and the act of knowing, in its representative aspect, we shall call a mental intention. Thus every act of knowing is an intention.

If knowing stopped with reporting what things are, there would be sciences of the real, but there would be no science of Logic. Knowing, however, does not stop with reporting reality as it exists in itself. I can take the first mental intention (*i.e.* *The child is pretty*) as given and say, *Child is the subject of the proposition*. This too is a mental intention, an act of knowing in its representative aspect. But it differs from the other intention in two ways. First, it tends towards or means, not something as it is in itself, but something as it is in the mind. We can thus call it an intention, because it is an act of knowing in terms of meaning something; we can call it a second intention, because it is a secondary way of being. Second, its object does not exist outside the mind. The child existed as pretty' outside the mind (and this is reported in the first intention); but the real child did not, and cannot, exist as subject of the proposition. The only place the child can be subject of the proposition is in a proposition, which exists only in a mind knowing, though expressed in sounds and written on paper. So, being subject of a proposition is a way of being that can be only in the mind. The traditional name for such a being is *ens rationis*. Logic then deals with mental operations in so far as they are *entia rationis of second intention*.<sup>23</sup>

John of St. Thomas goes on to explain these two elements of the formal object of Logic. First, the *ens rationis*. When the mind knows anything, it knows its object as being. When the object exists in itself, the object is a real being. Yet some of the mind's objects do not and cannot exist in the real world; for instance, a *centaur*, or *nothing*. Such indeed are known and known as if they were beings, and therefore deserve the name *ens*. But they are fictitious, because they correspond to nothing, actual or possible, in reality. Their objective existence, *i.e.* their entity which is known, is not and cannot be in things; their objective existence cannot

<sup>23</sup> *Ibid.* p. 261, col. 1.

be except in the mind knowing. Thus an *ens rationis* is “a being that has in the mind an objective *esse* for which there is no corresponding *esse* in reality.”<sup>2\*</sup>

The two top kinds of *entia rationis* are negations and relations of reason.” Since an *ens rationis* is formally opposed to real being which is capable of real existence, this fictitious being can, like real being, be conceived negatively or positively. If negatively, the *ens rationis* is a negation (or a privation, which is a kind of negation). If positively, it can only be a relation. For a thing conceived as something absolute, rather than relative, must be conceived as being in itself, *i.e.* substance, or in another, *i.e.* accident. In either case this way of conceiving implies a reality outside the mind, which the *ens rationis* excludes. But a relation, whose essence is a reference to another, can only be in the mind knowing and not in reality. The relation, as looking to another, touches the other extrinsically. It does not then require nor imply that what is known have existence in the real world. For instance, we speak of the right and left side of a page, yet neither side of the page is in itself right or left, but only from the viewpoint of a knower knowing. If there is no knower, neither side of the page is right or left. What is known, the “rightness” or “leftness,” is an *ens rationis*—it can be only in a mind knowing, even though there is justification for so knowing. The justification, of course, is not that one or the other must be the left side; rather it is the fact that one is not the other—and this really and independently of their being known. But the mind sets up this relation of reason, *i.e.* rightness and leftness, for its own convenience in distinguishing.

Not every relational *ens rationis*, however, is the formal object of Logic. Some relations of reason, though caused by reason are nevertheless applied to real things. When God is named Creator, the name expresses a relation of reason—the *relata* are not of the same order and therefore the relation is not real—but is applied to God as He is, not as He is known. So also for *right* and *left*, which are said of the existing page, not of the page as known. Such relations of reason are not the object of Logic. The task of Logic is to direct the reason in its proper activity. Its object therefore must be relations of reason that order things as *conceived*. Not only must an act of knowing cause the relation; an act of knowing is required to get the object to the state where it can be so related.<sup>21</sup> Take

<sup>21</sup> *Ibid.* p. 285. col. 2, line 14. John of St. Thomas refers to St. Thomas. *Pe Ente et Essentia*, c. 1: In V *Metaph.* lect. 9; *Sum. Theol.* I. 16. 3 ad 2.

<sup>83</sup> John of St. Thomas distinguished (*Ibid.* p. 287 col. 1) two non-formal bases of division. Looked at from the viewpoint of the subject to which the *rationis* is attributed, the division is into *entia rationis*: 1) with a foundation in the thing; 2) without a foundation in the thing. Secondly, looking at what the *ens rationis* imitates, it can be in any genus; for instance, a *chimera* imitates a substance, or *vacuum* a quantity, or *blindness* a quality.

“*Ibid.* p. 291. col. 2.



this case: *Animal is genus*. The facts are that individual men and beasts exist; the mind knows beasts and men as different kinds of beings. Then the mind sees that these beings, different in nature, have nevertheless something common in their natures. This results in the concept *animal*, a first intention—what is known is in reality. Then the mind inquires about this *animal as known*, and sees that it is related to man and beast as known in this way: That it is common to these two *known* natures. This relation is called *genus*, a truly logical name. To say *Animal is genus* is to know animal: 1) by a predicate that is a relation made by reason; 2) by a relation that is applicable only to animal *as in knowledge*; 3) by a relation that directs the activities of knowing. In a word, *genus* is a second intention that is a logical relation of reason. Such second intentions constitute the formal object of Logic.

Logic, then, as a speculative science and a liberal art, deals with the relations between things as known. As we would expect, the divisions of Logic will follow the divisions of these relations of reason. They, like real relations, are properly divided according to the difference of the proximate foundation. Now a second intention is founded on a thing as it stands in knowledge. Accordingly the way the object stands in knowledge, and consequently its relations to other things in knowledge, will be determined by the ordering and purpose of knowing.<sup>27</sup> This ordering of knowing varies with the three acts or operations of knowing: simple apprehension, judgment and inference. Thus Logic, because of its object, will be divided according to the three different operations of knowing. This brings us back to our first definition of Logic, whose "function is to direct the reason lest it err in the manner of inferring and knowing." In other words, Logic discovers, by reduction to indemonstrable principles, the unchangeable laws for correctly relating things as they stand in knowledge.

#### IV. *Traditional and Symbolic Logic*

This is hardly the place for a full consideration of so thorny a question as the relation of Symbolic to Traditional Logic.<sup>28</sup> But consideration of one specific point may throw some light on this larger question. The question, in large, I take to be this: Is or is not Symbolic Logic a perfected form of Traditional Logic? Those interested in Symbolic Logic have maintained that Traditional Logic is too closely tied to grammar to be truly formal, since it is limited to expressions manageable by word-language. The introduction of symbols freed Logic from the tyranny of

«» *Ibid.* p. 293, col. 1, 2.

\*•For the purpose of this introduction. "Traditional Logic" will mean Logic, in the Aristotelian tradition, of the sort that John of St. Thomas presented and defended.

ordinat}' language; Symbolic Logic is therefore more formal, thus more truly logical; and consequently an improvement, in the line of Formal Logic, over Aristotelian Logic.<sup>29</sup>

The one point we propose to consider here concerns the relation between the universal proposition and its particular. Symbolic logicians<sup>30</sup> argue that Traditional Logic is not accurate about subalternation. The criticism is this: in Traditional Logic the universal affirmative, or A, proposition implies the particular affirmative, or I, proposition. But this is not always true. In fact it holds only when the A proposition is existential, *i.e.* when it is about a class that is not empty. But if there is no existing member of the class, then the I proposition is not implied by the A. Take this example:

A. *All sea serpents are bearded.*

I. *Some sea serpents are bearded.*

The A proposition must be true, since every affirmative universal about an empty class is true.<sup>31</sup> The I proposition ought then to be true also; yet it is actually false, since there are no sea serpents that are bearded. The only time the inference from the A to the I proposition is valid is when the A proposition is existential. Traditional Logic, therefore, is wrong because it must read all universal propositions as existential, thereby tying formal Logic to existence. Logic, to be formal, ought not to get bogged down in existence.

Now this criticism, which looks so lethal, would never draw blood from John of St. Thomas. He would ask his critics to re-read his chapters on the rules of supposition (Book II, ch. 12) and the principle, *Did de Omni* (Book III, ch. 10); and in particular, to notice that it is a defect of any reasoning process "if the genus of supposition is varied."<sup>32</sup> Applying his rule to our case, he would say that *All sea serpents are bearded* is a proposition with a non-supposing subject, *i.e.* there are no sea serpents,

<sup>29</sup>The source of incompleteness in Aristotelian Logic is owing to: a) lack of symbolic procedures, according to C. I. Lewis and C. H. Langford (*Symbolic Logic*, Dover, N.Y., 1950, p. 3); b) the mistake of planning a Logic of knowledge without an analysis of mathematics (H. Reichenbach, *Elements of Symbolic Logic*, Macmillan, N.Y., 1947, p. 208); c) an insufficient analysis of propositions that assumed all propositions were of the subject-predicate form (L. S. Stebbing, *A Modern Introduction to Logic*, Crowell, N.Y. p. 139).

<sup>30</sup>See H. Reichenbach, *op. cit.* p. 95. Lewis and Langford, *op. cit.* pp. 62-65. D. Hilbert and W. Ackermann (*Principles of Mathematical Logic*, trans. Hammond, Leslie and Steinhardt, Chelsea, N.Y., 1950, p. 53) without positively censoring Aristotle, say that the Aristotelian interpretation of the universal affirmative would not be useful in mathematical logic. W. V. Quine (*Mathematical Logic*, Harvard, 1947, p. 102) emphasizes the "existential (or particular) quantifier," and would consequently agree with Hilbert and Ackermann on this point.

<sup>31</sup>This supposes that you read the affirmative universal to say: There is nothing such that it is x and not y. Thus if there are no x's, certainly there can be no x's that are not y's.

<sup>32</sup>Book III, chap. 13, below p. 131.

nor ever were as far as we know. The I proposition too must have a non-supposing subject if you want the subalternate of an A proposition having a non-supposing subject. Moreover, John of St. Thomas would remind his critics that they too ought not to get bogged down in existence; especially not in the existence of “some sea serpents,” because these, even if they happened to be, could just as well not be; that is, their existence is not formal to them and offers no necessity to ground a law.

The futility of this criticism proves very little in itself, except perhaps that the passion for accuracy, so frequently mentioned in books on Symbolic Logic, is in this case unprofitable. But there is more here than meets the eye. We can get at this “more” by asking: Why do symbolic logicians consider their criticism of traditional logic to be valid? Or, what comes to the same thing: Why do symbolic logicians take a particular proposition to be existential? They find a problem in the traditional square of opposition precisely because they take the particular proposition as existential and therefore demand that the universal be existential too in order to infer the particular from it. Now if things are as the symbolic logicians state them, no one can quarrel with their position. But they may be like the doctor who decided his patient had appendicitis because he knew how to cure that.

We shall begin with the particular proposition as it appears in the square of opposition. Symbolic logicians read the proposition, *Some sea serpents are bearded*, to say: there are sea serpents, some of which are bearded. The particular proposition is thus existential, *i.e.* the subject directly signifies beings that exist. For this proposition to be true when read in first intention, *i.e.* when talking about things, there must be some existing bearded sea serpents. All are agreed here. But the symbolic logicians also hold that when this proposition, *Some sea serpents are bearded*, is brought into a logical framework, the same relation to existence is needed. At this point John of St. Thomas would disagree. Logic, he would maintain, deals with things not as they exist in nature, but as they exist in the mind. And this is so even when existence or non-existence affects the way things exist in the mind, as with supposing subjects. Formal Logic never deals directly with extra-mental existence; only with existence in a mind.

Thus the relation of subalternation is a relation between things standing in the mind. It means this: if the A proposition stands in your mind as true, then the I proposition must also stand in your mind as true. In terms of the example, if sea serpents stand in your mind and every one of them stands as bearded, some cannot simultaneously stand in your mind as not-bearded—not if you have a mind. For the principle of non-contradiction is not something the mind bows to in passing. Rather it is the interior law of the mind, such that to be a mind thinking is to exemplify

this law.<sup>3</sup> And to affirm an A proposition that does not imply its I proposition is precisely to violate the principle of non-contradiction.

This last point is already clear in the example given above, and clear because of the form. For the A proposition, as a form, expresses the act by which man affirms that every instance of some subject receives a certain predicate. And the I proposition, as a form, expresses the act by which man affirms that some cases of the subject receive a certain predicate, without saying anything about the other cases of the subject. Were the A true and the I false, the only logical source of falsity would be the particularity of the I proposition, seeing that they are both affirmations and both have the same subject and predicate. But logical particularity is precisely what grounds logical universality. Universality becomes possible only when each particular holds steady. Let one particular slip and universality slips with it. Consequently to affirm the universal is true and its particular false is to affirm simultaneously: 1) that the particulars, all of them, are true; 2) that some particulars (*i.e.* some of those in 1) are not true.

But what if the subject is about a non-existing thing? First of all, it is no less a subject and no less universal. Even if no sea serpents exist, *sea serpents* stands in my mind because I put it there when I made it the subject of a proposition.<sup>31</sup> And *all sea serpents* stands in my mind as universal. That there are no existing instances is immaterial; what is required is that instances can stand in the mind, as they can in the case of sea serpents. What is of logical importance is to realize that implication from subjects standing for non-existents can proceed only to another non-existent. But this point in no way modifies the logical implication between the A and the I propositions.

This then is the situation. The two Logics give different rules for the formal relation between the A and the I proposition<sup>^</sup>. Both rules, properly understood, seem well founded. How account for such a difference? One answer is that the difference is owing to the two ways of reading a proposition. Thus I can read the proposition, *All eggs are fragile*, from the viewpoint of the things indicated (denotation)—this gives the proposition and rules of Symbolic Logic; or I can read the proposition from the view-

<sup>3</sup> Sec E. G. Mesthene, "Status of the Tjiv s of Logic," *Philosophy and Phenomenological Research*, 10 (1950), pp. 354-372. This article is especially noteworthy because its author prefers pragmatism.

<sup>34</sup> The only limit to what can stand in the mind is what is incompatible with mind itself directly and with being indirectly. This is the contradictory. Thus a subject that contains essentially self-destroying characters can be only a pseudo-subject. Some known things are incompatible with natural existence, such as *square root of minus one*. These can be subjects, even though they cannot exist. But some characters are incompatible with themselves, such as *immortal mortal*. These cannot be a subject but only a pseudo-subject. *Sea serpents* are not incompatible in either sense and can therefore be a subject in the mind.

point of the meaning stated (connotation)—the proposition and rules of Traditional Logic. Yet this distinction, however helpful in some discussions, does not get down to the heart of the matter.

First of all, the distinction is not completely applicable. It is not true that Symbolic Logic ignores all comprehension and Traditional Logic all extension. Symbolic Logic must have instances of classes and propositions. Thus *pin*es are instances of *tree* and *cows* of *animal*. Try' to ignore comprehension completely. No reason is left why *pin*es and *cows* are not equally instances of *tree*; or why proposition *p* is not really *q*. And if *cows* could just as well be instances of *animal* and of *tree* (i.e. non-animal), then *cows* are instances of neither and are not instances; and if *p* is really *q*, then *p* is not definitely a proposition because it is not definitely anything; with no instances, there is no extension. What comes to the same, without some comprehension implied there is no extension; or without some thing to think about, there is no thought. From the other side, Traditional Logic can hardly get along without extension. How could a universal proposition be distinguished from its particular, were extension ignored? Or what could the traditional logician, who ignored extension, do with this type of syllogism: *Man is a species, John is a man, John is a species*? That they do consider and regulate such a syllogism is clear evidence that they' never suspected they were to ignore extension.

What is true about the comprehension-extension distinction is that it points up a resultant difference between the two Logics; that is, it indicates a difference of over-all emphasis that characterizes the two Logics and their rules. But it explains nothing; rather it points to one aspect that needs explanation. For the emphasis which symbolic logicians place on extension must be traceable ultimately to what they' are thinking about; just as traditional logicians tend to emphasize comprehension because of what they are thinking about. Consequently, our next step is to determine what the two Logics attempt to deal with.

This brings us to the question: what is Formal Logic? Taken generally, Logic considers the thinking itself, i.e. the thought about things, rather than the things. This distinction, obvious enough, at least serves to separate Logic from other sciences, which are knowledge about things. In general then, Logic is knowledge about thinking. And Formal Logic? Here the question is not simple, nor is much real agreement possible about the proper definition of Formal Logic. In its historical meaning, *form* is generally a partner of *matter*, a relation suggested by the complementary' surface aspects of say the shape of a statue and the material shaped. The philosophical analysis of Aristotle discovered analogous matter-form aspects at the basis of physical reality'; and St. Thomas found these aspects, under the form of act and potency, at the metaphysical roots of reality'. Under such full development, *form* became a highly

charged concept, not easily transferable to another philosophical analysis of reality. Yet the word was taken over, even when its development was ignored or denied. All of which leaves the concept of *form* in the awkward position of being undefinable by a definition acceptable to all.

We can, however, get at a case of form in Logic by a less direct but somewhat definite way. As Quine points out,<sup>35</sup> we can approach logical form through vocabulary. Some propositions expressing our thought about reality have words that cannot be replaced without danger of making the proposition false. For example, *The sun is bright, the house is tall. House, sun, bright, tall*, are essential to the statements' truth. But some statements do not so depend on the content. Thus, *Socrates is mortal or Socrates is not mortal*. If you drop out *Socrates* and *mortal* and substitute two other content words, the disjunctive proposition is not thereby made false. Something about this proposition clearly distinguishes it from the former. We shall call this logical form and write it: *Either — is — or — is not —*. Take the classical example: *If every man is mortal and Socrates is a man, then Socrates is mortal*. Here the form is: *If every — is — and — is a —, then — is —*. Notice that the form of the statement is quite up to establishing itself. You do not have to investigate the facts about Socrates or crocodiles or anything else in order to see that this way of expressing thought is valid or "logically true."<sup>36</sup>

Symbolic and traditional logicians can agree: 1) that the sort of thing they both wish to investigate is logical form; and 2) that the cases given above, in terms of vocabulary, are cases of logical form. This agreement may appear to cover a large area, since both parties seem to have chosen the same object to investigate and have agreed on at least some cases of the object. But in fact, this agreement leaves open the possibility of radical difference. We shall try to point out this difference.

One obvious thing about Symbolic Logic is its generalization of content. Let these be the facts: a warm sun, a red house. Now put these in propositions: *The sun is warm* and *The house is red*. Next, generalize these propositions by abstracting from the special content of each. What is left are two propositions—any two, since special content is ignored, provided only that one is not the other. So generalized, these propositions can now be symbolized by *p* and *q*. Moreover, I can order them in various ways: *p* and *q*, *p* or *q*, if *p* then *q*, *p* is equally true as *q*. So far we

<sup>35</sup> Quine, VV. V., *Mathematical Logic*, Harvard, 1947, p. 2.

<sup>36</sup> Here is the way Quine defines the logically true: "A logically true statement has this peculiarity: basic particles such as 'is,' 'not,' 'and,' 'or,' 'unless,' 'if,' 'then,' 'neither,' 'nor,' 'some,' 'all,' etc., occur in the statement in such a way that the statement is true independently of its other ingredients" (*Ibid.* p. 1). On his own showing (p. 119), the relation expressed by *is* can be *is identical with* or *is a member of*; and whichever relation is expressed depends on the "other ingredients." In other words, *is* is not a basic particle comprising the logically true; and without *is* the other particles could not be "logically true" at all.

have freed forms from content. Next free them from grammar by symbolizing the relations between propositions. The resultant form, thanks to symbols, stands forth in all its purity. And this purity is grounded on symbolization and takes its character from the status that these symbols have in knowledge. Thus, what these forms are will depend ultimately on what these symbols are.<sup>37</sup>

First, we can say that these symbols are both in knowledge and about knowledge. They are in knowledge, because they are themselves known. They are about knowledge, because they stand for parts of propositions, whole propositions, and connectives between propositions; all of which pertain to knowledge. But this last point needs some qualification. For symbols in no way stand for the acts of knowing, but only for the result of an act of knowing. And even of the result, the symbol in no way indicates what is unique about this result. It symbolizes only that you have something in your mind, much as you have something in your pocket.

As Aristotle pointed out,<sup>38</sup> knowledge is both a being and a likeness, but the being of being a thing and the being of being a likeness are not the same. To consider knowledge simply as being is precisely to ignore the most distinctive aspect of knowledge, *viz.* its being a likeness. For knowledge is distinctive in this that it is a specification of the knower in terms of the known. Physical things, by contrast, are specified by a quality present in them, as heat in the coffee specifies the coffee. But the knower is not so specified by his knowledge. Otherwise, he would have to be hot in order to know heat; and, more strangely, the coffee would know heat because it is hot. The distinctive character of knowledge is to be about something not in the subject knowing. Thus one knowledge is distinguished from another by *what it is about*. And one way of knowing is distinguished from another by the different *way it is about something*. And ultimately both of these differences and distinctions are grounded in the reality known, to which the mind is responsive in its knowing acts.

This aspect of knowledge is precisely what symbolism proposes to reduce to a minimum.<sup>39</sup> The whole justification of symbolic representation of both content and relations between contents is to free form from anything beyond itself. Only in this way can that constancy necessary for precise manipulation be guaranteed. And what was the result of a vital act of the mind responsive to the aspects presented by things, now becomes, when symbolized, just a mental unit that can be treated as a

<sup>37</sup> The point here is not mere symbolization. Aristotle used symbols for subjects and predicates. The point here is *these* symbols and what *they* symbolize. But I shall speak of symbols as if there were none other than those used in Symbolic Logic

<sup>38</sup> *De Mem.* 1, 450 b 23.

<sup>39</sup> H. Reichenbach. *op. cit.* p. 7. says that logic requires its propositions to be meaningful, *i.e.* verifiable as true or false. In other words, content is not completely ignored, since only content can be true or false.

precise and determined thing in itself. Thought is thus in a sense denatured and remade to the image of self-contained units that happen to be in the mind.<sup>40</sup>

Such mental units, now on their own,<sup>41</sup> can be put together in different patterns. But they must be put together as units are, by joiners which are themselves constant units. The unity is thus simply a unity of pattern. And the patterns, like the units, are not distinguished because the object known requires this sort of mental response. Nor do they arise from an intrinsic movement of the act of knowing. The pattern is purely an extrinsic arrangement. It arises from the fact that the propositional unit, because it is such, must be either true or false. One pattern will generate this truth-table and another that. Consequently the pattern will be defined, not as if it were an act of the mind thinking, which it is not; but as an arrangement of units generating this or that truth-table.

On this showing, pure forms are not forms of the act of knowing. They are simply the possible arrangements that completed thought can receive.<sup>42</sup> Two mental units can both be true; one or the other can be true; one can be true as depending on the other; they can be equally true. Obviously, the relations here are between mental things, and to that extent the patterns are mental. But real things can be arranged in the same pattern.<sup>43</sup> Thus, two doors are both open, one or the other is open, the first is open as depending on the second, and one is equally open as the other. I can make up an open-table and by this means define, not my thought about the door, but any real definite situation existing between two doors. If an arrangement fits neatly both thoughts and things, one begins to suspect that either 1) thoughts are not really different from things; 2) or that thoughts are considered as things. The first alternative excludes the possibility of Logic as a science distinct from any science of things. The second alternative leaves the possibility of a Logic, but not of a Logic of reason's distinctive activity in the face of things.

Traditional Logic maintains that its logical forms are precisely forms proper to the act of knowing. Consequently, it does not consider the con-

<sup>40</sup> It seems to be more than an accident that symbolic logicians speak of the analysis of the simple proposition as atomic, and of the analysis of the compound proposition as molecular.

♦ See H. Vcath, "Ontological Status of Logical Forms," *Review of Metaphysics* 2, 1948, pp. 40-64.

<sup>42</sup> H. Reichenbach, *op. cit.* p. 1. says: "It is rather the results of thinking, not the thinking processes themselves, that are controlled by logic." John of St. Thomas proposes logic as an art "whose function is to direct the reason lest it err in the manner of inferring and knowing." See below, p. 25.

<sup>43</sup> H. Vcath ("Formalism and/or Intentionality in Logic," *Philosophy and Phenomenological Research* 11 (1951), pp. 348-364) argues that an intentional relation, which is always one of identity, is precisely what a real relation cannot be. Vcath concludes that Symbolic Logic is not about second intentions at all. I would prefer to say that it is about second intentions considered as first intentions.



sequences of acts of knowing, but the knowing acts themselves. A case in point is the disjunctive proposition. Read as an act of knowing the disjunctive proposition is an alternative affirmation. It is a way of saying: take your pick, for one of these must be true. The logical ground for this act of knowing is that one component proposition contradicts the mind or equivalently, the other (or others). Between contradictories the mind must precisely take its pick because one must be true. Thus *A man is either mortal or immortal*. And notice that this disjunctive has a logical ground, t.e. negation precisely takes away what the affirmation posits. One proposition must be true because of logical conditions. Of course, there are extra-logical conditions that sometimes ground a disjunction, as in *A hunter either shoots or does not kill a deer*. The disjunctive element here derives from the factual situation, viz. granted that the hunter is prepared to shoot, he must either shoot or not kill a deer. Without this condition, there is no disjunction. Moreover, the component propositions are not logical alternatives, nor even real ones. This disjunction, therefore, is imperfect, and you need not "take your pick"—you can keep both alternatives, and should in case the hunter is a poor shot. Nor will such imperfect disjunctive propositions be the basis for defining a disjunctive affirmation, not when there is question of defining acts of the mind. Definitions of acts of the mind should define its perfect, not its imperfect, exercise. By the same token, the definition of disjunction in terms of the resultant propositions would emphasize the minimum condition, as being the most generally applicable.

But a more crucial case<sup>4</sup> is implication. Traditional logicians take implication to mean that one proposition is bound up with (*implicare*—to fold into) another. This metaphor means that the act of knowing one thing brings along with it the knowledge of another. There is a necessary knowledge-connection between two propositions such that knowing the antecedent is already knowing the consequent. What grounds this connection? In Traditional Logic the basis is content. Not always true content, however, for this is a valid implication: *If a man has functional wings, he can fly*. Once you have known the antecedent, you have *already* known the consequent, because the latter is included in the former. The logical form of antecedent-consequent arises from the very act of knowing content in a special way.

« An equally crucial case is the subject-predicate relation. Only in knowledge can this relation appear, because only in reason can one thing be broken down into two aspects—*vis.* 1) being known as *subjected* to something; 2) being known as *naming* a subject—and still kept as one by "is." But if subject and predicate are reduced to strict mental units, both known simply as classes and joined only by class inclusion. I can duplicate this situation with 50 cows in a pen and 4 bulls in a smaller inside inclosure. On the subject-predicate relation see Peter T. Geach, "Subject and Predicate," *Mind* 59 (1950), pp. 461-482.

But take out all determining content; that is, suppose it makes no difference what content you have. Implication is no longer grounded on signification. Nor can it mean the act by which I know one thing from simply knowing another. For one knowledge can carry another only because what one is about is also what the other is about. Gloss over all content and the ties arising from content are broken. What is left? Only a factual dependence. That is, the consequent is *de facto* tied to the antecedent. To ask if such a consequent must follow on such an antecedent is to talk nonsense. All that the mind could possibly see is that the two are together. But you can intelligently ask: When can the consequent possibly be with the antecedent? Put negatively, the question is: When is it impossible that the consequent be dependent on the antecedent? The answer is: Whenever the antecedent is true and the consequent is false. Even factual dependence is excluded in such a case. In all others, the conditional is valid; for instance, this is a valid conditional: *If the house is not red, it is colored.* It is valid because the house's not-being-red does not exclude its being colored. But if the house were not red and not colored, then being colored could in no way, not even factually, be dependent on not-being-red.

The problem of this interpretation of the valid conditional is to give some logical meaning to "factual dependence."<sup>45</sup> That a definite meaning can be given in terms of true and false propositions is clear enough. But this does not make factual dependence a logical relation. Actually such a relation is merely a duplication of the relation between two actual things. Let these be the facts, as Aristotle reports them of ancient Greece; namely, that "more males are born if copulation takes place when the north than when the south wind is blowing."<sup>46</sup> Grant these facts and they can be arranged in this way: a) north wind blowing, more boys conceived; b) north wind not blowing, not more boys conceived; c) north wind not blowing, more boys conceived. The one combination of facts that Aristotle excludes is: the north wind blowing, not more boys conceived. Yet this last combination does not arise from the way things

<sup>45</sup>This is generally called "material implication." L. S. Stebbing (*op. cit.* p. 224 sq.) says that this relation expresses what is the case as a matter of fact. A. N. Whitehead and B. Russell (*Principia Mathematica*, second ed. Cambridge, 1925, Vol. 1, p. 94) say that "although there are other legitimate meanings, the one here adopted is much more convenient for our purposes than any of its rivals. The essential property that we require of implication is this: 'What is implied by a true proposition is true.'" See also pp. 7, 20. H. Reichenbach (*op. cit.* p. 30) calls adjunctive implication a simplified concept "constructed by the scientist." W. V. Quine (*op. cit.* pp. 14, 29) attempts to show the close relation of material implication to ordinary usage, though some uses of truth-functional tables have no practical equivalents (p. 17). S. K. Langer (*Introduction to Symbolic Logic*, Houghton Mifflin, N.Y., 1936, p. 276) says that material implication is a relation of truth-values.

*De Generatione Animalium*, IV, 2, 767 b 34, Oxford translation.

are thought. It arose from the way things were. Thought too, as things, will have this same arrangement; but it will not arise from their being thoughts. Nor will this relation ever be the equivalent of the antecedent-consequent relation of Traditional Logic.

For this antecedent-consequent relation is between two things as *known*. That is, the way they are known is that one is known as carrying the knowledge of the other along with it. And this relation is properly a relation reason sets up in knowing things. Moreover, the mind does not merely duplicate a real relation. There is no implication between things. There are connections of cause and effect, sign and signified, part and whole, action and passion, and many others. But none of these are implication, precisely because implication arises from the mind's knowing. It is a form of thinking about things; not a form of things thought about, not even when the things are propositions.

Thus the pure form of Symbolic Logic is quite distinct from the logical form of Traditional Logic. Pure forms are the relations between thoughts considered as mental things. By means of symbolization, the most central and unique aspect of thought, *viz. its* signification, is cut to the barest minimum. What signification remains is not a principle of differentiation. Thus the form cannot vary according to the various ways signification is accomplished by this or that act of knowing. Pure form arises from the presence of distinct mental units that can be combined in various ways, no matter how they might be grasped. By contrast, logical forms are forms of the thinking we do about things. These forms touch the most central aspect of knowledge, the way it achieves reality in thought. And one form is distinct from another, not by its results, but by its distinctive way of bringing reality into thought.

Now we can return to our original problem. It was that the two Logics have different formal rules for the relation of implication between the A and the I propositions. If our analysis has hit on a fundamental difference between pure form and logical form, it should help explain why the two Logics have different rules for this relation.

First the A proposition. Traditional Logic must consider the way in which such a proposition achieves the object. In *Every man is mortal*—and this is the most correct expression of the A proposition—Traditional Logic looks to the signification. The subject *man* directly signifies human nature.<sup>47</sup> And since to be a man is to have human

<sup>17</sup> Common names and universal concepts are not the result of generalization. Were they, they would be indefinite. But the universal has definite content. Janies and John, for instance, differ in many ways, but they do not differ in what is most central to them. *i.e.* in their being man. It is their being man, their very sameness, that holds their differences to be only different ways in which their sameness appears. Thus John and James are both men. Other aspects, say that John is shaved and fat while James is unshaved and skinny, appear as

nature, and all men have it, the subject indirectly means both each man that is or any man that can be. The predicate *mortal* does not mean a nature, but the way a nature is, *viz.* qualified as being liable to death. Thus the whole proposition means that this quality of being mortal characterizes every man that is or could be, because it characterizes his nature. And this way of signifying is called in Traditional Logic a universal way of signifying.\*s And universality, as a way of thinking, does not arise from grammatical considerations. Merely putting *all* in front of the subject does not make the proposition logically universal. For instance, *All the horses of the bakery are white* is logically singular; its subject is not a nature nor a character considered as a nature, but rather a number of individuals considered enumeratively.<sup>40</sup>

Symbolic Logic, on the other hand, is interested in neither subject nor predicate nor universality, because it is not interested in how things are thought. It looks rather to thoughts as things. There are two mental units *x* and *t*/<sup>o</sup> about which we know only that *x* is not *y*. The A proposition now becomes *All x's are y's*. The reason for composing such a proposition is not that *x* or *y* is known in any special way. The reason is that *x's* and *y's* are always together; that is, what *x* stands for is always found with what *y* stands for. Fill in definite content and the proposition becomes *Men (x's) are always mortal (y's)*. But the content is immaterial to the analysis of the proposition, since the way *men* is known is no different from the way *x* is known. All that can be said is that all the *x's* in fact are *y's*. Put negatively, the factual situation is that there are no *x's* that are not also *y's*. An A proposition, so read, can express two quite different situations: first, where there are existing *x's* (*e.g.* men) and none of them are not *y's* (*e.g.* mortals); second, where there are no existing *x's* (*e.g.* sea serpents) and consequently none of them are

clearly insignificant in terms of what each is. We see quite unmistakably (that John and James would be what they are, *i.e.* men, even if they had none of the characteristics. Once we see what is so important to a thing that it is not if it is not such, we have a concept of what it is. Far from being indefinite, the universal concept is the *most definite knowledge* man has, even though the existing individual, in itself, is more definite. This point becomes clearer when one attempts to define an individual, rather than merely locate or measure or describe it.

♦The same analysis is true of *All Texans are Americans*. That is, *Texans* is considered as a nature (subject) and being *Americans* as a way of being (predicate) the subject enjoys. Reading this proposition in terms of class-inclusion does not exclude, but rather supposes, (the subject-predicate relation. For class-inclusion demands that some individuals be thought as members of both classes. And this is possible only where a thing is known as identically of one sort (*i.e.* the subject) and also known to be of another sort but not identically so (*i.e.* the predicate).

<sup>y</sup>\* See H. W. B. Joseph. *Introduction to Logic*. Oxford, 1916, p. 177 sq.

<sup>60</sup> Quine, *op. cit.* p. 120. "The statement 'Some/All wise' now says something about two objects, man and a class; namely it says that one is a member of the other." The class of wise is one object, though a more abstract kind than Socrates. At any rate, Quine sees that he needs *two* objects.

not y's (e.g. bearded). For it is tme to say that there is nothing such that it is sea serpent and not bearded.

Notice what has happened to the A proposition of Traditional Logic. First, the A proposition, originally affirmative, has become negative; it sneaks of what is not. Second, subject and predicate have both moved into the predicate position. Third, an A proposition whose subject is an empty class must always be true. Thus *All sea serpents are bearded* is true, because there is nothing such that it is sea serpent and not bearded. For the same reason, *Square-circles are oblong* is equally true. Such changes are of no importance when we consider thoughts as things. But they are critical when there is question of how things are thought. Negation is a separation of terms and quite different from a union of terms. And subjects put into the predicate position turn out to be intellectual monstrosities. For example, try to make sense out of this: There is nothing such that it is S and not P.<sup>91</sup> And as for *Square circles are oblong*, there can be no question of *how* it is thought. Such a proposition cannot be thought; it can only be put into words that are thoughtless, since square and circles destroy each other and leave nothing that could possibly be oblong, even in thought.

The results of a different meaning of form are clear enough in the A proposition. They become even clearer in the I proposition. Traditional Logic never reads the I proposition as existential and Symbolic Logic must read it as existential in order to have an I proposition. Thus, in Traditional Logic *Some men are white* means that the quality *white* modifies some cases of man; it does not mean, nor even imply, that there are also some who are not white. Nor does it mean that some white men exist. To get this said requires an existential proposition, e.g. *Some white men are*, where there is no strict logical predicate.” The point of the I proposition is not the existence of some men but the whiteness of some men.

But Symbolic Logic must have an existential proposition in order to have an I proposition at all. Recall that y is not the predicate of x; y is a mental unit just as x is. Thus the I proposition cannot express the *yness* of some x. All it could possibly say is that in some instances an x is a y. And there must be such instances. For if there were no existing cases of x, then x is a null class and the I proposition would become an E proposition, *i.e.* there would be nothing such that it is x and y. In other words, if the I proposition is not existential, there is no I proposition possible.

» See P. T. Geach, *ob. cit.*p. 480.

M See F. C. Wade, S.J., "The Judgment of Existence," *Proceedings of the American Catholic Philosophical Association*, 21, (1946), pp. 102-106.

The rules, then, *for* implication between the A and the I propositions can hardly be the same in Symbolic as in Traditional Logic. Symbolic Logic must say that existential content is a condition in both the A and the I in order that the A imply the I proposition. And the reason is obvious. If the I proposition is necessarily existential, then what implies it must also be existential, else you would not be talking about the same thing in both propositions. Thus between *All sea serpents are bearded* and *Some sea serpents are bearded* there is no implication. The A proposition is true and the I is false. But Traditional Logic has no need of a rule requiring that both propositions be existential. It ignores the question of existence or non-existence,<sup>53</sup> because it inquires only how things are thought. One proposition implies another when the presence of one in the mind necessarily includes the presence of the other. Consequently there is implication between *Every sea serpent is bearded* and *Some sea serpent is bearded*, in spite of the fact that there are no sea serpents whatever. And its rule comes to this: if you think every sea serpent is bearded, you must think some are. Whoever affirms the A proposition and denies the I proposition will do so precisely because he is not thinking.

From our consideration of this one problem of implication the conclusion is that Symbolic and Traditional Logic are not opposed, because they do not treat of the same object. Traditional Logic inquires into the forms of thinking, the various ways things are achieved in thought. Symbolic Logic never asks about the forms of thinking, but about the relations between thoughts considered as things. Since the two Logics do not have the same object, there is little chance one will correct the other, and there is little likelihood that one is a more perfect form of the other.

We deliberately leave open the more interesting question: Which Logic is the top Logic? Put in more contemporary words: Which Logic is the more general? Whoever attempts to answer that question must thoroughly re-examine each of the two types of Logic. And when the time comes for his penetrating re-examination of Traditional Logic, this man will be well advised to by-pass such authors as J. S. Mill and B. Bosanquet and penetrate the tradition with the help of that master of Logic, John of St. Thomas.

<sup>55</sup> See the point raised by H. Ambrose and M. Lazerowitz (*Fundamentals of Symbolic Logic*, Rinehart, N.Y. 1948. p. 187). They say that it is a "curious fact" that metaphysicians and theologians throughout the centuries did not try to prove the existence of God from the traditional square of opposition, starting with the A proposition: *All perfect beings are happy*. Raising such a point only shows that the good old days of "curious historical facts" are not gone forever.

The Reiser Edition (Turin, 1930) keeps in the body of the text all the references that John of St. Thomas makes. Since these are frequently general, Reiser gives more definite references in the footnotes. For example, Reiser adds the Leonine numbers for references to the authentic logical commentaries of St. Thomas, and the Bekker numbers for Aristotle.

Since the procedure need cause no confusion, I have taken out of the text and put in footnotes nearly all references that were in the body of the text. These references use the Latin names of the works referred to, except where reference is made to parts of the work here translated, when English is used. Moreover, the Latin names of the works are abbreviated, as is the common practice. The Bekker numbers are added in the usual manner. The Leonine numbers are added in this way: "no. 5."

Reiser also adds (in footnotes) variant readings from the first Lyons Edition, 1663. These I have translated in footnotes under the designation: "Lyons adds:". Where Reiser adds a reference to a work not named in the text, I have added the rubric: "-R." Notes that are the work of the translator are indicated: "-Tr."

For purposes of visual emphasis within chapters the Reiser text employs the following typographical devices: bold face words, small capitals, extra spaces between letters of words, and italics. I have reduced these to two: small capital headings and italics. In general the headings within chapters that I have employed stand for bold face words towards the beginning of the paragraph they head.

Thanks are due Rev. Stephen J. Rueve, S.J., and Prof. Charles O'Neil, both of Marquette University, for their many valuable suggestions; also to James J. O'Brien, Jane C. Koelbert, Virginia M. Binsack for helping with the manuscript.

# JOHN OF ST. THOMAS

## *OUTLINES OF FORMAL LOGIC*

### INTRODUCTION\*

### The Art of Logic, Its Division, Order, Necessity

In every art two things are chiefly to be considered: 1) the matter in which the art is operative; 2) the form that is induced in such matter. As in building a house, the stones and wood are the matter; the form is the composition, since the stones and wood are ordered to each other in the one shape and structure of the house. The builder does not make the matter, he takes it as given beforehand. But he introduces the form, which because specifically brought into existence by the art is also principally intended by the art as being its work. Now Logic is "an art whose function is to direct the reason lest it err in the manner of inferring and knowing"—as the art of building directs the builder lest he err in the making of a house. And therefore Logic is called a rational art; not only because it is in the reason as in a subject, as other arts are, but because the very operations of reason are the matter it directs.

And the reason, in order to infer and to make judgments, proceeds by way of resolution, *i.e.* by going back to its principles and understanding the proofs making this resolution clear. Therefore, for Logic to direct reason lest it err is the same as for Logic to direct reason so that it resolves correctly and as it ought. Hence those parts of Logic that teach the forming of sure judgments Aristotle called analytical, *i.e.* resolving into elements, because they teach one to resolve correctly and without error. Moreover, correct resolution takes place both from due form and from certitude of the matter. The things or objects that we wish to come to know correctly are the matter. But the form is the very manner, or arrangement, by which the objects known are connected in order to infer and know as one ought; because without connection neither is some truth conceived nor do inference and illation from one truth to another occur. And resolution from the side of form is said to pertain to prior resolution; from the side of matter, according to certitude

\*This is the second part of the General Introduction, the *Prologus Totius Dialecticae*. It has two parts. The first is *Praeludium Primum*, which treats briefly the scholastic exercise of disputation; this part I have not translated. The second is *Praeludium Secundum*, which treats the division, order and necessity of the art of Logic; this part is the one here translated as "Introduction."-Tr.



and required conditions, to posterior resolution. The reason is that the consideration of the art-made form is prior in an art to the consideration of the matter.

#### Division of Logic

It is thus we derive our division of the art of Logic and give it two parts. In the *first* part we shall deal with all those things that pertain to the form of the art of Logic and to prior resolution. These are the things the Philosopher dealt with in *On Interpretation* and *Prior Analytics*, and are customarily taught beginning students in "Outlines." But in the *second* part we shall deal with what pertains to logical matter, or posterior resolution, especially as it is in demonstration towards which Logic is principally ordered.

And in this first part we compose a brief text for students beginning their education; then we discuss more difficult questions for the more advanced. But in the second part we shall, following the text of Porphyry and Aristotle given summarily, present more useful and weightier discussions.

#### Order of Procedure

Since Logic directs the manner of reasoning correctly and there are three acts of reason in which there is progress from one thing to another, as St. Thomas teaches,<sup>1</sup> no better order can be followed than to partition the treatment of Logic on the basis of these three operations. The first operation of our intellect is called a simple apprehension, as when I understand man but make no affirmation or denial about man. The second operation is composition or division; when namely I so know a thing that I attribute something to it, or deny something. For example, when I say that man is white or deny that man is a stone. The third operation is discourse; as when from some known truth I infer and conclude another truth not so known. For example, from the truth *Man is rational* I infer *Therefore he is educable*. First then I apprehend the terms, then I compose a proposition from these, and finally I form inference from propositions.

Thus therefore in this first part we shall distribute the treatment in three books. The first book for what pertains to the first operation, where we shall treat of simple terms. The second book for the second operation, where we shall treat of the sentence and the proposition and its properties. The third book for the third operation, where we shall treat of the manner of inferring, of forming syllogisms and induction, and of other things pertinent to reasoning.

<sup>1</sup> *In 1 Anal. Post.* I., text. 1. no. 4.

In the second part of Logic, however, we shall treat of what pertains to the matter of such operations, chiefly as directed to forming certain judgments from necessary truths, which takes place in demonstration. Now truths necessarily depend on essential predicates, which are ordered together in the predicaments. And these latter depend on the predicables, which are called the ways of predicating, as will be explained more fully in the beginning of the second part of Logic. Nor does any inconvenience arise from treating twice in Logic of simple apprehensions and what pertains to the first operation. The reason is, as St. Thomas notes,<sup>2</sup> that simple expressions are treated in *Categories* under one aspect, *scil.* as signifying simple essences; in *On Interpretation* under another aspect, *scil.* as being parts of an enunciation; in *Prior Analytics* under another aspect, *scil.* as constituting the syllogistic order.

Finally, inference can proceed in order to form a judgment in a threefold way: proceed certainly by means of demonstration; dialectically by means of opinion; erroneously by means of sophisms. For this reason Aristotle, after treating of demonstration and science in *Posterior Analytics*, treats of the opinionative in *Topics* and of the sophistical syllogism in *On Sophistical Refutations*.

#### Necessity of Logic

The necessity of this art is the greatest both for the reason general to all arts which are necessary, so that a man be directed correctly and without error in his works; and especially because Logic directs the works of reason on which all inference and reasoning depend in order to be correct and to proceed with order and without error. Certainly this is exceedingly necessary for a man using his reason. But concerning this more will be given later.<sup>3</sup>

<sup>2</sup> *Zl. I De Inter?*, lect. 1. no. 5.  
<sup>3</sup> *corl.* II, q. 1.



# JOHN OF ST. THOMAS

## *OUTLINES OF FORMAL LOGIC*

### BOOK 1

### The First Operation of the Intellect

#### Ch a p. 1

#### *Definition of the Term*

Authors have various opinions about the definition of the term/ according as they consider in it different references or functions: whether as a part making up a sentence in any manner whatever; or as a principal part and as a term only; or as terminating the resolution of a proposition and a syllogism; or as a predicate and a subject.

In fact, these considerations are true and all have place in the term. But one ought to see which consideration more suitably explains the nature of the term as pertinent at present. For our mind proceeds by resolution in the sciences and especially in Logic, which is called analytics by Aristotle,<sup>1</sup> because it resolves into elements. Consequently it ought to be that some ultimate element or term of this resolution can be designated, beyond which there is no resolution by art—just as in natural generation prime matter is the ultimate principle of resolution. Otherwise either the process would go on forever or there would be no perfect resolution. And since the term of resolution is the same as the principle of composition, what would have been the ultimate element into which logical composites are resolved will be said also to be the first from which the rest are put together.

Therefore keeping this in mind, we say that we are dealing at present with the term viewed as an ultimate element. In it ever}' resolution of a logical composition, even of the proposition itself and the sentence, terminates because from it one properly begins as from the primary and the more simple. We grant that Aristotle<sup>3</sup> defined the term as "What a proposition is resolved into, as into predicate and subject." Still, he did not in this place define term in its full breadth but narrowly, as serving the making and putting together of the syllogism. Here the syllogism consists of three terms, in so far as they are the extremes of a proposition and take on the relation of a syllogistic, *i.e.* inferential, part. At any rate, in other places Aristotle considered the term in its more universal nature, as being also common to the noun and the verb; and

<sup>1</sup> Lyons adds: "that is. of a simple expression, such as *man. Peter, stone.*"

<sup>2</sup> *Rhet.* I. 4. 1359b 10.-R. *Metaph.*, IV. 3, 1005b 3.-Tr.

<sup>3</sup> *Anal. Prior.* I, 1, 24 b 16.

not under the word *term*, but under *expression*, where it takes on the reference of composing an enunciation, not the relation of inferring in a syllogism. Whence St. Thomas\* explaining the words of Aristotle: "The noun and the verb are only expressions,"<sup>5</sup> says: "And it seems from his manner of speaking that he used this name for signifying the parts of an enunciation." There is therefore, according to Aristotle and St. Thomas, some nature common to the parts of an enunciation. The Philosopher called this an expression. We call it a term, because in it every resolution terminates; not only that of the syllogism, but also of the enunciation, which is made up of simple units and consequently is resolved into them. And in the same work, St. Thomas" says that the *noun* is taken as signifying in a common way any expression whatever, even the verb itself. And in *Opuscle* 48/ towards the beginning, he calls terms "parts of the enunciation." Therefore we say that from this most common understanding of term as the ultimate element of every logical resolution, a beginning must be made and a definition of it given.

#### Definition of Term

And thus term, or expression, is not defined through its being only an extreme of a proposition or its being predicate and subject, but through something more common, *soil*. "that from which a simple proposition is made." Even better, following Aristotle<sup>8</sup> who defined noun, verb and sentence as being sounds, since they are signs more known to us, term is defined: "A sound, significant by convention, from which a simple proposition or sentence is made." However, in order to take in the mental and written term, it will be defined: "A sign from which a simple proposition is made."

It is called "sign" or "significant sound" in order to exclude non-significant sounds, such as *blitiri*, just as Aristotle excluded these from the noun and the verb. And since every term is a noun, verb or adverb, if none of these is a non-significant sound, then the meaningless sound is not a term, as I shall show more fully in the Question of this matter. We say "by convention," in order to exclude sounds significant by nature, such as groans. We say, "from which a simple proposition is made," in

\* *In I De Iliter*>. lect. 8. no. 17.

*Dt Infer*/. 5. 17a 17.

• *Op. cit.* lect. 5, no. 15.

1 *Sum. Tot. Log. Arist.* Prooemium. (John of St. Thomas considered this *Summit* an authentic work of St. Thomas. Modern scholars consider it spurious. See Mandonnet. P. *Revue Thomiste*. X. 1927, pp. 146-157; Grabmann. M. *Beitrage Zur Geschichte der Phil. des Mittelalters*, XXII. 1. 2. 1920, pp. 168-71. John of St. Thomas, in the part of his *Logic* here translated, refers to this *Summa* five times. He refers once each to two other spurious works of St. Thomas. *De Satura Syllogismorum* and *De Inventionone* J/cdii.-Tr.1

• *De Inter*/. 2. 16a 19; 4, 16b 26.-R.

order to exclude the proposition itself, or sentence. This is not a composing element but is something put together as a whole. And if it does sometimes compose, it makes up a hypothetical, not a simple proposition.

We shall speak later' about whether the term outside a proposition is actually a part, in so far as having the essence and relation of a part, even though not a part as exercising composition.

## Ch a p. 2

## *Definition and Division of Signs*

### *Definition of Sign*

The term as well as the sentence and the proposition and the other logical tools are defined by means of signification. The reason is that the intellect knows by means of significant concepts, speaks with significant sounds, and in general, all the tools we use in knowing and speaking are signs. Consequently, in order that the logician know accurately his tools, *scil.* terms and sentences, he must know also what a sign is. The sign therefore is defined in general: "What represents to a cognoscitivo faculty something other than itself."<sup>1</sup>

To understand this definition better, one must consider what is the fourfold cause of knowledge, *viz.* efficient, objective, formal and instrumental cause. The efficient cause is the power itself which elicits cognition, such as vision, hearing, intellect. The object is the thing which moves or to which knowledge tends; as when I see a stone or a man. The formal cause is the very knowledge by which the power is rendered knowing, such as the vision itself of the stone or man. The instrumental cause is the medium through which the object is represented to the power, such as an external likeness of Caesar represents Caesar. The object is threefold: motive only, terminativo only, motive and terminativo at the same time. That is motive only which moves the power to forming a knowledge, not of itself, but of another; such as the likeness of the emperor, which moves to knowing the emperor. Terminativo only is the thing known by a knowledge produced by some other object; such as the emperor known by means of a likeness. That is terminativo and motive simultaneously which moves the power to forming knowledge of the object itself; as when the house wall is seen in itself.

Therefore "to make knowing" has a wider meaning than "to represent," and "to represent" wider than "to signify." For *to make knowing* is said of everything that comes into knowing. Thus it is used in a four-

<sup>9</sup>Log. 1, q. 1, a. J.\*

<sup>1</sup>Lyons adds: "Thus we lay down the definition of a sign in order to take in all signs, formal as well as instrumental. For the definition commonly spread around. 'A sign is what makes something come into knowledge other than the likeness it carries to the sense,' fits only an instrumental sign."\*

fold *sensa*: effectively, objectively, formally, and instrumentally. It is said *effectively*, when said of the power itself eliciting the knowledge and of the causes concurring in it: of God as mover, of the agent intellect or producer of species, of the habit which aids, etc. It is said *objectively*, when said of the thing itself which is known. For example, if I know man, man as object makes himself known by representing self to the power. *Formally*, when said of the knowledge itself, which as a form renders one knowing. *Instrumentally*, when said of the medium itself passing on the object to the power. For example, the likeness of the emperor carries the emperor to the intellect as a kind of medium; and we call this medium an instrument. *To represent* is said of everything by which something is made present to the power. Thus it is used in a threefold way: objectively, formally and instrumentally. For the object represents itself *objectively*, for example a house wall; knowledge represents *formally*; a footprint' *instrumentally*. *To signify* is said of what makes present something distinct from itself and so is used only in a twofold manner: formally and instrumentally.

#### Divisions of Signs

Hence arises the twofold division of signs. For signs as ordered to the power, are divided into formal and instrumental. But as ordered to the thing signified, they are divided, according to the ordering cause, into natural, conventional and customary signs. The *formal* sign is the formal knowledge which of itself represents without the mediation of another. The *instrumental* sign is that which, after itself is known, represents something other than itself; such as the footprint of a cow represents a cow. And the custom is that this definition for the sign is generally taught.<sup>3</sup> The *natural* sign is one that represents from the nature of the thing, independently of any decision or custom. Thus it represents the same thing for all people, such as smoke representing fire. The *conventional* sign is one that represents something owing to a voluntan' decision of public authority, such as the sound *man*. The *customary* sign is one that represents owing to practice alone, independently of any public decision; for example, a napkin on the table signifies lunch. All these things pertaining to the nature and division of signs we treat fully later?

#### Chap. 3

#### Divisions of Terms

##### 1. Mental, Vocal and Written Terms

The first division of terms is into mental, vocal and written. The

<sup>s</sup> Lyons adds: "or a likeness."

<sup>3</sup> Lyons adds: "but it fits none except the instrumental sign."

11. qq. 21.22.

*mental* term is the knowledge, or concept, from which a simple proposition is made.<sup>1</sup> The *vocal* term is defined above, Chapter 1. The *written* term is conventionally significant writing from which a simple proposition is made.

The mental term, if we consider it in its essential species, is divided on the basis of the objects, from which the species of the knowledge is taken. And thus we do not deal with the division of these at present; we only treat of certain general conditions of knowledge, or concepts, by which the different modes of knowing are distinguished. And notice that what is to be divided is simple knowledge, *i.e.* pertaining only to the first operation of the mind. For we are dealing with the division of mental terms and term looks to the first operation. Whence, in this division of knowledges, some knowledge pertaining to inference or to composition is not included; for none of these is a term or a simple apprehension. Likewise, we leave out all practical knowledge and what has a reference to the will, because the will is not moved by the simple apprehension of a term, but by a composition or judgment about the agreeableness of a thing, as we shall say in the work "On The Soul."<sup>2</sup>

The knowledge, therefore, which is a simple apprehension, or a mental term, is divided first of all into intuitive and abstractive knowledges. This division embraces not only intellectual knowledges, but also that of the external senses, which is always intuitive knowledge, and that of the internal senses, which is sometimes intuitive and sometimes abstractive. *Intuitive* knowledge is knowledge of a thing present. And I say "of a thing present" and not "presented to a power." For "to be present" pertains to a thing in itself, as it is outside the power. "To be presented" fits (the thing as placed before the power, something common to every knowledge. *Abstractive* knowledge is knowledge of an absent thing, which is understood in a way opposite to intuitive.

Secondly, knowledge in so far as it is a concept is divided into ultimate and non-ultimate concepts. The *ultimate* concept is that of the thing signified by the term, such as the thing that is a man is signified by the sound *man*. The *non-ultimate*, or mediate, concept is that of the term itself as signifying; for example the concept of the term *man*.

Thirdly, concepts are divided into direct and reflex. The *reflex* concept is that by which we know that we know. Thus it has as its object some act or concept or power within us. The *direct* concept is that by which we know some object outside our concept, without reflecting on our knowledge, as when stone or man is known.

<sup>1</sup>Lyons add»: "The concept is that likeness which we form within us when we understand something."

<sup>2</sup>*Phil. Nat.* IV, q. 12, aa. 1, 2.



## 2. Univocal and Equivocal Terms

The second division of terms pertains more properly and principally to the vocal term. Thus terms are divided into univocal and equivocal. A term is said to be *univocal* that signifies its signified objects by the same concept. For example, *man* signifies all men as coinciding in the same concept of human nature. And "in the same concept" is understood without qualification; not merely proportionally one as the analogous are, which are said to be at least one by proportion—as we shall say later? The term is called *equivocal* that signifies its objects not by the same but by several concepts; that is, not as in any way resembling each other, even proportionally, but as differing—just as dog signifies an animal and a star? And therefore there is no equivocation in the ultimate concept of the mind, as we shall say later? The reason, the concept is a natural likeness and if it is one, what it represents is one. But if the concept attains several, it does so as they coincide in some one nature, which is the property of univocals. And therefore this division properly applies to vocal terms, where equivocation is found, *i.e.* unity of sound with plurality of signification, since signification is conventional, not natural. See also what is said later?

And notice that Aristotle<sup>3</sup> defines the equivocal: "That whose name is common, but the nature signified different." The reason is that this definition was given for the things signified by an equivocal or univocal name. These are called *equivocated* equivocáis, *i.e.* equivocally signified. But here we have defined terms signifying equivocally or univocally. These are called *equivocating* equivocáis, *i.e.* signifying equivocally or univocally.

Equivocáis are divided into equivocal *by chance* and *by design*. The first is equivocal without qualification and the definition given fits it. The second is analogous and is what signifies its signified objects as being one according to some proportion and not without qualification. For example, *health* when said of animal and plant. We deal with this later?

For the present note two rules for analogous terms. First, the analogous taken per se stands for the more renowned signified thing. For example, when you say *man* and add nothing determining or restricting it, it stands for living man, not pictured man. Second, with the analogous and the equivocal the subjects are as many as their predicates or restrictions permit. That is, when a name signifies several, it is

<sup>3</sup> Log. 11, q. 13.

\* Lyons adds: "without any resemblance in nature, but in sound."

<sup>5</sup> Log. 11, q. 13, a. 2.

|| Log. 11, q. 23. a. 4, arg. 2.

† Caley. 1. 1 a 1.

• Log. II. qq. 13. 14.

limited to standing for some according to the demands of the predicate or restriction; for example, if you said. *The dog barks*, it stands for the dog that is an animal. We explain these rules later?

### 3. C a t e g o r e m a t i c a l a n d S y n - C a t e g o r e m a t i c a l T e r m s

The third division of terms is into categorematical and syn-categorematical, as if you said, using a latinized form, significative, or predicative, and con-significative. The *categorematical* term is that which signifies something per se. Here "per se" should be read with "something." That is, it signifies something which is represented as something per se, *i.e.* not as an adverb or a modification, but as a certain thing, as when I say *man*. The *syn-categorematical* is that which signifies qualifiedly, such as the adverbs *quickly*, *easily*, the signs *every*, *some*, etc. And it is said to signify qualifiedly, not because it does not truly and properly signify; but because its signified object is not represented as a thing per se. but as the mode of a thing, *i.e.* as exercising modification of another thing.

## Ch a p. 4 *Divisions of Terms (Continued)*

### 4. S u b d i v i s i o n o f C a t e g o r e m a t i c a l T e r m s

The fourth division divides categorematical terms into various subdivisions. Of these no one is subordinate to another, but they fit terms, as it were, on the same plane. And these subdivisions can be reduced to five major ones.

### C o m m o n a n d S i n g u l a r T e r m s

Some categorematical terms are common, some are singular. The *common* term is one that signifies several taken one by one, as *man*. And we understand "several taken one by one" to mean as communicable to several. For it signifies something which offers no impossibility to being understood as communicated to several, owing either to the thing signified or at least to the manner of conceiving. For this reason even the name *God* is a common term because of the manner of signifying due to our concept—as we explain later.<sup>1</sup> The *singular* term is one that signifies only one thing, such as *Peter*, *this man*. That is, it does not have a signified object communicable to several, not even because of the manner of signifying. And here we add the division of terms into collective and divisive. The *collective* term is one that signifies several taken together in a unit, such as *nation*, *Salamanca*, etc., since they are a collection of

• *Log.* II, (j. 13, a. 2.

<sup>1</sup> *Log.* II, (j. 5, a. 3.

several. The *divisive* term, one that signifies one thing as an individual or several things taken one by one, such as *Peter*, *man*.

#### Absolute and Connōtative Terms

Some categorematical terms are absolute, others connotative. The *absolute* term is one that signifies a thing as a per se being, *i.e.* after the manner of a substance, whether it be in itself a substance, as *man*, or an accident conceived without its subject, such as *whiteness*. The *connotative* term is one that signifies a thing as modifying another, such as *white*, *blind*. Whence the connotative term ought to have one principal and direct signified object which is the same as its absolute—such as *white* and *whiteness*—and another indirect signified object, *viz.* that which it modifies and in which it is found. And the connotative does not signify indirectly and connotatively anything other than what it truly fits; not what it fits imaginatively and falsely. Nor is it enough to connote an object, as do *science* and *wisdom*, which are absolutes and yet look to their objects and connote them. The connotative terms ought to connote the subject in which it is found. And beware not to confuse connotative, concrete and adjective. For the concrete is opposed only to the abstract and can be found in an absolute term, *e.g.* *man* is concrete and absolute. Therefore that is called concrete which signifies something constituted as a “that which,” *e.g.* *man*; whereas the abstract signifies it as “that by which” it is constituted, *e.g.* *humanity*. Also, the adjective is opposed to substantive, not to connotative. Whence a connotative term can be found that is not an adjective expression, such as *father*, *creator*, even though every adjective is connotative.

#### Terms of First and Second Intention

Some categorematical terms are of first intention, others of second intention. A term of *first intention* is one that signifies something according to what it has in reality or in its own proper status, *i.e.* independently of the status it has in the intellect and as having been conceived—such as *white*, *man* as they are in reality. A term of *second intention* is one that signifies something according to what it has from being a concept of the mind and in its intellectualized status, *e.g.* *species*, *genus* and other like things that the logician deals with. And terms are called “of first and second intention” because what fits a thing because of itself is, in a sense, primary to it and its proper status; but what fits a thing because of its being understood is, in a sense, secondary and a secondary status coming to the first. And therefore it is called “of second intention” as a kind of second status.

## Complex and Incomplex Terms

Some categorematical terms are complex, others incomplex. The *complex* term is one whose parts are per se significant, such as *white man*. The *incomplex* term is one whose parts are not separately significant, as *man*.

And note two points. First, that a complex term can also be a sentence. But it is a sentence from one aspect and formality, and a term from another. It is a sentence when those significant parts are considered as composing one whole, because by attributing in a sense one thing to another the intellect rests there as in some composite whole. It is a term when those significant parts are considered, not as making up a whole, but as making some part composed from other parts yet of itself orderable to making up a whole. Just as the head is a part of man, though made up of other parts, such as eyes, ears, mouth, etc. Second, that in order for a term to be complex it ought to have parts significant per se. That is, they have and exercise their own signification within the complex itself that they make up, so that if some part is deprived of its own signification, the complex would be destroyed. Hence the special nature of the complex term is that its parts are subordinated to several concepts, as St. Thomas teaches.<sup>2</sup> For this reason terms composite in structure, as *wild-horse*, *law-giver*, etc., are incomplex terms for the dialectician. For they are subordinated to a single concept and are used with one single meaning, so that even if "horse" were deprived of its own meaning in itself, still "wild-horse" would signify the same thing.<sup>3</sup>

## Disparate and Pertinent Terms

This division pertains to the relation of terms among themselves. For some terms are *nonpertinent*, or *disparate*, i.e. one neither implies the other nor is repugnant to it, such as *white* and *sweet*, *learned* and *just*. Other terms are *pertinent*, i.e. one implies the other or is repugnant to it; and therefore these are divided into terms sequentially pertinent and repugantly pertinent. *Sequentially* pertinent, because they follow on and accompany each other, e.g. *man* and *risible*. *Repugantly* pertinent, because they are opposed to and irreconcilable with each other, e.g. *seeing* and *blind*, *hot* and *cold*. We treat of the repugantly pertinent in "Postpredicaments," section on Opposites,<sup>4</sup> and below when dealing with the opposition of propositions<sup>5</sup>; and therefore here the matter should be dropped.

-In *I De hterp.* lect. 4, nos. 9, 10.

<sup>3</sup> "Wild-horse" (*equifer*) was apparently considered a breed. An example, clearer to contemporaries, would be *shoe-horn*. In this term, "horn" has lost its original meaning, though "shoe-horn" has not.-Tr.

<sup>4</sup> *Log.* II. q. 20, a. 1.

<sup>5</sup> Book 11, chap. 16, below p. 80.

So far we have dealt with the term as a simple part of a sentence and as including in itself all parts of a proposition, no matter how they are parts. Now in detail we move down to the parts from which the sentence itself is necessarily constructed. And we divide these, not according to the various ways of signifying as we have so far done with terms, but according to the different ways of composing and constructing a sentence. For the dialectician these parts are two: noun and verb. Aristotle treats these? And as St. Thomas points out, only these two are considered by the dialectician as parts of the sentence and the others ignored. His reason is that only these, *viz.* noun and verb., are necessarily required for an enunciation, seeing that without them not even a simple enunciation can exist. The noun therefore composes a proposition as an extreme; the verb as joining and as a medium that unites. And thus they have a different manner of constructing a proposition.

#### Definition of the Noun

The noun therefore is defined by Aristotle as: "A sound significant by convention, with no reference to time, none of whose parts signify separately, definite and direct." Aristotle<sup>1</sup> gives this definition and St. Thomas' explains it.

The first three parts of the definition, *viz.* "sound . . . significant . . . by convention," we explained in the definition of the term. The remaining four are proper to the noun and distinguish the noun from what properly are not nouns.

Thus the phrase "with no reference to time" distinguishes the noun from the verb, which signifies with reference to time, as will be seen in the next chapter. And therefore *with no reference to time* in the definition of the noun does not exclude time as a thing signified. It excludes signification with reference to time as a mode of signifying; because the noun signifies a thing as a steady extreme, the verb as in flux, or as joining and acting; and action works out in time and motion.

"No part of which signifies separately" is said in order to exclude a sentence and a complex term. A sentence, because it is not a noun but is composed of a noun. A complex term, because it is not a noun but several nouns; but the nature of being and of being one is the same.

"Definite" is used in order to exclude indefinite names, such as *not-man*. Note here that *not-man*, if taken with the force of two expressions

<sup>1</sup> *De Inter*\*, 1-3. 16a. b.

<sup>2</sup> *De biterf.* lect. 1. no. 6.

<sup>3</sup> *De Inter*K 2. 16a 19.

\* *In I De Iuteri*, lect. 4, nos. 19-22.

as though made negative, is a complex thing and is excluded by the former phrase, "none of whose parts etc." But if taken with the force of a simple expression, it is made indefinite and is excluded from the nature of a noun. The reason is not because it cannot be a part of a proposition as a predicate and a subject; but because it does not have the mode of a noun, which is to point out and signify something definite. But a noun made indefinite does not signify something determined; it takes away a definite signified object. And since it operates by taking away the object signified, not by placing one, it is not a noun. Distinguish here that it is not the proper force of an indefinite noun not to signify something—for the noun *nothing* does not signify something—, but to take away the signified object that is in some noun. And therefore it is by right excluded from the nature of noun, because it takes away the signified object of the noun and neither posits nor has the function of positing, but of taking away, the name signified.

"Direct" is used in order to exclude the oblique forms into which a noun is declined, such as *of man*, *to man*, etc. And these forms are excluded from the noun. For they are not nouns per se but by reason of their principal or nominative forms, from which they are derived and of which they fall short. Whence the nominative and oblique forms signify the same thing, but they do not exercise signification in the same way. The oblique forms do not exercise a signification that serves to signify a thing as a "what" and as some extreme in itself, but as of another and looking to another. Whence it follows that they do not render the supposit by a substantive verb, but by an impersonal verb, such as "*poenitet me!*" And so they make a sentence reductively or by supplying in thought the nominative, as if this were said: "*Poenitentia tenet me!*"<sup>1</sup>

## Chap. 6

## *The Verb*

### Definition of the Verb

The verb is defined by Aristotle as: "A sound significant by convention, having reference to time, none of whose parts signify separately, definite and direct, and is always a mark of what is predicated." Thus Aristotle<sup>1</sup> and St. Thomas.<sup>2</sup>

<sup>1</sup> The example here used, *poenitet me* (I am repentent) and *Poenitentia tenet me* (Repentence holds sway over me) cannot be translated into an English impersonal form. The sole remaining example of the pure impersonal in English (*Century Dictionary* Revised, 1914, N.Y.) is *methinks*. Reductively it says: *It seems to me*. The nominative supplied in this case is *it*, which stands for what it is that seems.-Tr.

<sup>1</sup> *De Interp.* 3, 16b 6-25. (This is not one sentence in Aristotle, but a summary of what Aristotle says of the verb.-Tr.)

<sup>2</sup> *In I De Interp.* lect. 5, nos. 2, 3.

The first three parts of the definition, *scil.* "sound . . . significant . . . by convention," were explained in the definition of the term.

The phrase "having reference to time," which is used to differentiate it from the noun, indicates nothing other than to signify something in the mode of motion, or of action and passion, seeing that motion is measured by time. And to signify as having reference to time is not to signify time itself as being some thing—for this takes place through the noun —, but to signify some thing as measured by time. Now a thing is measured by time when it is signified as in flux according to some motion or action. For motion and action primarily and per se are measured by time. Whence it is that when a verb is freed from time, as when I say: *Man is an animal*, and in other propositions of eternal truth, the verb does not cease to signify as having reference to time, *i.e.* after the manner of action or flux. But it does cease to restrict the truth of the proposition so that it depends on time. That is, that the extremes are not joined because of time alone or dependently on some time, but owing to their own intrinsic quiddity, even though this itself be signified after the manner of time and action. More about this later.<sup>4</sup>

The fifth phrase, "none of whose parts signify separately," is used to differentiate the verb from the sentence and in order to exclude complex verbs, which are not one verb but several, as we said of the noun. Nor is the verb, whether adjective or substantive, subordinated to a double concept, so that it signify some thing and signify action or motion as though a mode of union or composition. For these are not two signified objects nor two concepts, but one object signified plus such a way of signifying. Just as the noun also signifies a thing as a being per se, where the thing and the mode of being per se are not two objects signified since no thing is signified without some mode. And the verb is itself—whether it be of the second adjacent, as when I say: *Peter is*, or be of the third adjacent/ as when I say: *Peter is white*, adding a third word as predicate—always signifies the same, *viz.* to be. The reason is, as St. Thomas says,<sup>5</sup> that this is in common the actuality of every form, whether substantial or accidental. And thence it is that when we wish to signify any form whatever as being in something, we signify it by means of *is*. Whence by consequence it signifies composition. Thus says St. Thomas.

<sup>3</sup> Lyons adds: "for example, these nouns *time*, *day*, *year*."

<sup>4</sup> *Log.* 1, c. 3. a. 1.

<sup>5</sup> "Of second adjacent (*de secundo adjacente*) . . . of third adjacent (*de tertio adjacente*)" are technical terms. They distinguish two uses of *is*. The author distinguishes them by this that in one the predicate is not a third word, in the other it is. We can also distinguish the two uses of *is* as existential (the existence of the subject is affirmed, *e.g.* *The book is*) and attributive (some way of being is affirmed of the subject, *e.g.* *The book is hard to understand*). The reason why *is* has these uses is given by the author.—Tr.

<sup>6</sup> *ht l he Interf*>. lect. 5. no. 22.

The sixth part, “definite,” excludes the indefinite verb, such as *not-walks*, for the same reason that indefinite nouns also are excluded from the nature of the noun. And the negated verb is distinguished from the verb made definite. The negated verb corresponds to a complex concept, *viz.* that of the verb itself and of the particle *not*. But the verb made indefinite corresponds to one concept, as we said of the noun. Also, the negated verb makes the proposition negative; the verb made indefinite does not. Even though a verb, placed inside a proposition, be made indefinite, it does not affect the copula and union of extremes (for this union is never made indefinite through negation, but is denied, producing a negative proposition), but is made indefinite only with regard to the thing signified, as will be said later.’

The seventh part, “direct,” is used in order to exclude oblique verbs. And just as in the noun what is called oblique declines and falls short of the proper mode of the noun, which is to signify in the manner of a “what” and of a being per se, whereas the oblique signifies as of another; so in the verb the oblique is said of what falls short of the proper mode of the verb—which is to signify as in motion and action—when namely the verb signifies action in the past or future, etc. For this is not action without qualification, but only that which is present. Hence obliqueness of the verb takes place through the deviation of times.

The last phrase, “and is always a mark of what is predicated,” is used by Aristotle and St. Thomas and therefore we use it, though it is omitted by others. And it is used in order to exclude the participle, which can in fact be used both as predicate and subject, even though it signifies with reference to time. And still the participle is excluded from the nature of verb, because the verb always looks to the predicate, since it either signifies the predicate itself or is required for joining the predicate to the subject. And therefore it is a mark, *i.e.* a sign, of things said of, *i.e.* things predicated, because it composes and joins them to the subject, as we said. If at times the verb is used as subject, such as the verb in the infinitive mood, this is so because then the verb is taken with the force of a noun and not in the role of a verb. Thus St. Thomas says.®

<sup>†</sup> *Lofl.* I, q. 3, a. 2.

® *hi I De Ijiterf.* led. 5, nos. 8, 9.





# JOHN OF ST. THOMAS

## *OUTLINES OF FORMAL LOGIC*

### BOOK 2

### The Second Operation of the Intellect

#### Ch a p. 1

#### *The Sentence in General and Its Division*

##### Definition of Sentence

The sentence<sup>1</sup> is defined by Aristotle as follows: “The sentence is a sound significant by convention, whose parts taken separately have meaning as an utterance, not as an affirmation and negation.” So say Aristotle<sup>2</sup> and St. Thomas<sup>3</sup>.

Here the sentence is defined in a general way, taking in both complete and incomplete, simple and hypothetical sentences. And the first three parts were explained in the definition of the term. The phrase, “whose parts taken separately have meaning,” is best explained by saying that the sentence is subordinated to a composite concept, as is shown from St. Thomas/ so that even within the very sentence there are parts that make it up, and these correspond to distinct and separate concepts as components of one whole. By reason of the first requirement, words composite in structure, such as *commonwealth* and *standard-bearer*, etc., are not sentences. They are not because they do not refer to two concepts, but to one, even though the sounds separated from the sentence signify different things. Now by reason of the second requirement the sentence is distinguished from the complex term. The reason is that the complex term has also significant parts and many concepts, but as a part making up something further, not as the whole that is composed.

The last part of the definition is given by Aristotle and St. Thomas in order to show that the parts of the sentence must at the very least have meaning “as an utterance,” *i.e.* as a term; and that it is not required that the parts be an affirmation or a negation. For even if the sentence be hypothetical and have parts that are affirmation and nega-

<sup>1</sup> “Sentence” translates *oratio*. Here *sentence* is not completely satisfactory, mainly because of its grammatical flavor. But then *discourse* connotes consecutive thinking, the third operation of the intellect. I have used *sentence* because the Oxford translation so translates this text of Aristotle which John of St. Thomas is following. Throughout I have translated *oratio* by *sentence* or by *statement*.

• *De Interp.* 4, 16b 26.

\* *In I De Interp.* lect. 6, nos. 2, 3.

◁ *Ibid.*

tion; yet the simple affirmation and negation are also themselves sentences and must be resolved into parts that have meaning signifying only as a simple term, not as an affirmation. Therefore, in order to give a general definition of the sentence, we give that which is common to all sentences: to have parts that are simple terms or utterances.

#### Division of Sentences

The first division of sentences is into complete and incomplete. The *complete* sentence, according to St. Thomas<sup>5</sup> is that "which produces a complete meaning in the mind of the hearer"; the *incomplete* sentence, "that which produces incomplete meaning."

Now, meaning is said to be complete or incomplete, not because one implies assent and the other does not, nor because one is true or false and the other not. Rather, the precise reason is that one, the complete sentence, does not leave the mind in suspense, waiting as it were for the full sense of the sentence. For the complete sentence finishes and expresses an integral meaning, as when I say: *God is the highest good*. The incomplete sentence, however, does not have a full meaning, but leaves the intellect in a way suspended, as when I say: *Peter arguing, if you should sleep, when he teas passing* and the like. Such sentences are closely akin to complex terms and differ only in the way of composing and joining the terms together. For in a sentence the terms are joined together as a whole, even if the whole be incomplete and result in suspense; in the complex term they are joined together as composed parts.

### Chap. 2

#### *The Means of Demonstrative Knowledge*

Before we deal with the principal kind of complete sentence, which is the proposition, we must treat of the means of demonstrative knowledge. Granted that much that pertains to the means of knowing demonstratively is found in the third operation of the mind, reasoning; still, since some also is found in the second operation of the mind and some even in incomplete sentences, in general a means of demonstrative knowledge is not limited either to complete or incomplete sentences. Thus it is appropriate, before we deal definitely with the complete sentence, to consider in general the means of knowing demonstratively, which can be found in both complete and incomplete sentences.

#### Definition of Means of Demonstrative Knowledge

Thus, in general a means of knowing demonstratively is defined: "A sentence that manifests something unknown." Note here that it is one

\* *bi 1 De Interp.* lect. 7, no. 4.

thing to manifest and another to signify. For even though the sign seems to manifest to the power the thing signified, yet to manifest, as we are considering it at present, is not the same as to signify taken absolutely. To be manifest has two meanings: in one sense it is opposed to obscure; in another to the unknown and to what has not been applied to a knowing power. In the first sense manifestation takes place through something better known and more clear, which removes the obscurity in question. And in this sense to manifest the unknown in our intellect pertains to the means of demonstrative knowledge, provided this happens by way of a sentence. For the manifestation that takes place through a formal nature that makes clear in a simple manner—e.g. the authority of the speaker manifests what is worthy of belief—is not a means of demonstrative knowledge because it is not a sentence or complex exposition, *i.e.* ordered to demonstrated knowledge which has the character of inference. In the second sense manifestation takes place through some medium or instrument that gives us an object not previously given. And in this sense to manifest pertains to the sign or the representative, as commonly used.

When, therefore, something unknown or obscure needs to be unfolded by some sentence that would disentangle and do away with the obscurity, such a sentence is called a means of demonstrative knowledge, since every manifestation is called demonstrative knowledge or is ordered to demonstrated knowledge. Now there are two things that a sentence can manifest to our intellects: something simple, or a complex truth. A *simple* thing, for example *man*, *sky*, *earth*, etc., is unfolded by a definition, if there is obscurity touching the quiddity; and by division, if there is confusion about the parts or the many units which are contained in a thing. Whereas a *complex* truth, if it is obscured or doubtful, is made manifest by proof. And proof is accomplished through consecutive thought and inference, and so it is reasoning.

#### Division of Means of Demonstrative Knowledge

Therefore from the standpoint of the things to be manifested, the means of demonstrative knowledge are divided adequately into definition, division and reasoning. This is the reason why definition and division are sometimes said to pertain to the mind's first operation, or the simple apprehension, because its object, which it manifests, is something simple.

#### Chap. 3

#### Definition

Definition is "a sentence that sets forth the nature of a thing or the meaning of a term." For instance, when I say: *Man is a rational animal*,

I unfold the nature of man, which in the term man is not unfolded. And when I say: A *white thing is a thing having whiteness*, I do not unfold the nature of the white thing, but the meaning of the noun, since my statement is equivalent to: *White thing is a sound meaning something that has whiteness*. The defined thing is related to the definition as its object and is interchangeable with the definition.

These three questions must be explained: 1) What are the conditions required for a good definition? 2) What are the conditions required for something to be definable? 3) What are the kinds of definitions and the ways of forming them?

#### Conditions for Good Definition

Concerning the first point, there are three conditions necessary for a good definition:

The *first* is that the definition must be given through the genus and differentia. And this condition applies not only to the essential definition, where a genus and differentia in the strict sense are found, but also holds for the accidental and descriptive definition, where strictly there is no genus or differentia, but something that serves in place of them. Therefore, by genus we mean something common; by differentia we mean some distinctive particular. Thus we mean that every good definition, in order to unfold a definite nature, ought to show forth the nature by that which is common to itself and others, and by that which is proper to itself and distinguishes it from others. For in this way the definition covers the entire nature of a thing.

The *second* condition is that the definition be clearer in meaning than the thing defined, because it manifests the latter. From this we conclude that the defined ought not come into the definition. Otherwise, the definition turns out not to be clearer but more confused. So in the usual definition of man, that he is a rational animal, it would not be well to add that rational animal is man.

The *third* condition is that the definition be neither too broad nor too narrow. For if a thing has more than the defined or less, by this very fact it cannot unfold the thing's nature, since it attributes to the nature something the nature does not have, or deprives the nature of something it does have. And thus the definition cannot fit anything except the defined; and so an excellent source of arguing is from the definition to the defined and contrariwise.

#### Conditions for the Defined

Concerning the second point, there are also three conditions required for something to be a defined thing, in other words, so that it can be defined.

*First*, that it be per se one, *i.e.* one essence. For if a definition unfolds many essences, there is not one thing defined, but several. And consequently before a thing be defined, the ambiguity and confusion of plurality must be removed and then each one must be defined. If, however, several things exist as a unit and come together to constitute one essence, or if one is a thing and the other its modification, it is not impossible that such be grasped by a single definition.

The *second* condition is that the object to be defined be universal. The reason is that, since only a quiddity and a nature is defined, the singular, which adds individual characteristics beyond the nature, cannot be defined. Likewise, they do not come under science; although singularity taken universally can be defined, because then it is considered as a quiddity and a definite nature.

The *third* condition is that every defined thing, if it be defined by a strict and proper definition, must be a species under some genus, seeing that every proper definition consists of a genus and a differentia. And thus a strict definition can be given only of something which is under a genus. This does not hold if a thing happens to be defined by its external causes or relations, where there is no question of such a strict definition.

Moreover, what is defined is of two kinds, namely, the remote and the proximate. This distinction is differently explained by different writers depending upon their different interpretations of remoteness and proximity. Some say that the *proximate* defined is the name itself or the term signifying the thing defined; while the *remote* defined is the signified thing itself. For example, if I define man as rational animal, the term *man* is the proximate defined, the thing signified is the remote defined, because things draw closer to us by the terms as means; hence in the nominal definition there is only a single defined. Others say that the *proximate* defined is the nature itself and the quiddity, which is the immediate object of the definition, while the *remote* defined are those things in which the nature is found, that is, individuals. For when I define man, human nature is defined immediately; Peter and the other individuals of this nature remotely. Both sets of meanings can be used.

#### Kinds of Definitions

Concerning the third point there are many kinds of definitions.

*First*, definition is divided into nominal and real. That is a *nominal* definition which unfolds the meaning of the name; and consequently, it comes ven' close to the nature of etymology. The *real* definition is one that unfolds the nature of a thing signified. For instance, if I define a white thing, *the same as something having whiteness*, the definition is nominal. However, if I say *piercing to vision*, it is a real definition, be-

cause it unfolds what the thing itself is'; whereas the first definition tells what the name means. And in this distinction between nominal and real definitions we are always working with formal and per se meanings. For we do not deny that from a real definition we also arrive at a notion of the proper meaning; and frequently it is impossible to unfold the meaning of the name except by revealing the thing itself. But we must judge which is a nominal or a real definition by what each one unfolds directly and per se.

*Second*, the real definitions are divided into essential, descriptive and causal. The *essential*, or *quidditive*, definition is a statement unfolding a certain thing by means of its essential parts or predicates, e.g. *Man is a rational animal*. However, in each thing we may consider the physical parts, as matter and form, and the metaphysical parts, as genus and differentia. Consequently, the quidditive definition is twofold: the *physical*, which is given through the matter and form; the *metaphysical*, which is given through the genus and differentia. Yet even in the physical definition matter is put in place of the genus and form in place of the differentia, so that thus it is true that every definition consists of a genus and differentia or something in place of a genus and differentia. The *descriptive* definition is one that is given by means of a thing's accidents, either proper or common; for instance, if you said, *Man is a risible animal*, or a *two-footed animal*. The *causal* definition is one that is given by the extrinsic causes. These extrinsic causes are

<sup>1</sup> This definition, "piercing to vision," is an example of a real definition, but it would be a better example if it were also true. Notice that John of St. Thomas does not say it is a true definition; he says that if a white thing be so defined, the definition is real. What he is doing is quoting a standard "text-book" example. Aristotle used this definition of white (*Metaph.* X. 7. 1057b 8-10; *Top.* III, 5, 119a 30-31; *VII.* 3. 153a 39), but conditionally as does John of St. Thomas. Aristotle took it from Plato, who thought it truly defined a white thing. To him the act of seeing was accomplished by two streams of light, one the light of the eye and the other, like it, the light of day. When the two lines meet on an external object, the lines coalesce and the whole stream of vision, from the eye into the soul, becomes similar to what it touches or what touches it (*Tim.* 45; *Theaet.* 156-7). White and black in things are distinguished by the way the particles or flames emitted from each affect the stream of light from the eye. If the particles or flames (made similar to the eye by the day-light on them) are greater than those of the vision-stream, as in the case of black things, they compress and contact the visual stream. Thus a black thing is compressive (ὀψιφάνειον ···· συγκρατικόν) of vision. If the particles are smaller, as in the case of white things, they penetrate and dilate the visual stream. Thus white, as a color, is piercing (διεισφάνειον ···· διασπαστικόν) to vision (*Tint.* 67). Having a different explanation of vision and the visible. Aristotle (*Psych.* II, 7. 418a 27. 418b 1), St. Thomas (*De Anima*, lect. 14; *Pr. Sen. et Sensat.* lect. 6) and John of St. Thomas (*Cursus Phil. Thom.* IV. q. 5. a. 2; q. 7. a. 1) could hardly consider Plato's definition of a white thing true. They used this definition for the same reason that accounts for many examples in books, to wit, everyone else had used them. The modern student, with a scientific background, should be warned not to feel too condescending towards Plato's explanation of vision. He at least held fast to what is an indisputable fact, however annoying: namely, that seeing is so much my own action that it will never be fully explained by saying (in effect) that the eye is a camera stuck in a face.-Tr.

two, *viz.* efficient and final, as will be said in *Physics II* because they do not constitute the nature but are outside of it (since the matter and form are the intrinsic causes). For example, if you defined the human soul: *a form created by God for beatitude*, then *by God* is the efficient cause and *for beatitude* is the final cause.

## Chap. 4

## Division

Division is "a statement that distributes a thing into its members or a term into its meanings." For instance, if I said: *Animal is rational or irrational*, or *Dog means a star and means an animal*.

### Conditions for Good Division

And, since division is directed to clarifying by distribution the confusion of the thing divided, just as definition to clarifying the quiddity, three conditions are necessary for good division. *First*, that the members taken singly be inferiors, that is, less than the thing divided, since every whole is greater than its parts. *Secondly*, that all the members that divide it taken together fill up or equal the whole divided. The reason is that there is nothing in the whole other than all its parts taken together. *Third*, that the members that divide it have some opposition, at least formal, to each other. If they had no opposition, neither would they have distinction, but rather identity; and therefore would not be diverse members. All those conditions can be seen in the following division: animal is *rational* or *irrational*; also in this division: goods are *virtuous*, *useful*, or *pleasant*.

Some logicians add a *fourth* condition, namely, that a division have only two dividing members or at least as few as possible. It is true that every division can be reduced to two members if it be formed by contradictories, *e.g.* goods are *virtuous* or *non-virtuous*. This condition, however, is not always necessary in order for the division to be good. Rather, when some genus is distributed into species that are equally and immediately subordinated, it can be divided into these. However, if the genus is not divided into several species immediately and equally subordinated, the division ought to be into two members or into as few as possible: and then distributed into the other inferiors. For example, substance would not be divided properly into *man*, *plant*, and *angel*; but, in an orderly fashion, into *corporeal* and *spiritual*, and *corporeal* into *living* and *non-living*, etc.

: This is probably intended to 1« a very general référence to 'Sophia Naturalis I. qq 9-13, dealing with the four causes' B. Reiser gives this preference: q. 11. aa. 1, 2. Better, though not too helpful, references are q. 10. aa. 1, 2; q. 12. a. I.-Tr.



The species or kinds of division are many. Since division distributes a whole and whole is used in many ways, so also is division. For there is an essential whole, an integral whole, a universal whole, a potential whole. And similarly, the species of division can be multiplied.

To help you grasp them all briefly, let us make two lines or series. One line is *per se* division, the other is *per accidens* or accidental. In the *per se* division you put five species, which are derived in this way: even-thing that is divided is a sound significant with reference to its own meanings, or it is a thing signified. If the first, the division is *nominal*; if the second, the division is *real*. Now the thing that is a whole can be related: to the parts by which it is entire; or to the parts that constitute its essence; or to the parts subordinate to it. In the first case, the division is *partition*, by which a thing is divided into its integrating parts; for instance, if you said that the human body is divided into *head, trunk and feet*; and the universe into *angels, corruptible bodies and incorruptible bodies*. In the second case, it is an *essential* division into its constituents; for example, if you said that one part of man is *soul*, another is *body*; one element of man is *animal*, another is *rational*. In the third case, the division is into parts subordinated to the whole in regard to predication or in regard to potentiality. If regarding *predication*, the division is of the genus into the species, because the genus is predicated of the species as of inferiors. To this kind also belongs the division of the genus by the differentiae. In fact it seems to be the same, since the genus is not divided into differentiae, but by means of the differentiae the genus is divided into the species, and is better unfolded when it takes place through the differentiae, e.g. animals are *rational* or *irrational*. And this division is most proper and quidditive, inasmuch as it touches that in and through which the genus is narrowed down essentially to the species; also that in which the divided thing is predicated of the dividing members. If the division is into the subordinated parts that are potencies, it is a division of a *potential* whole. For example, if you said that souls are *intellectual* or *appetitive*; that prudence is *judicative, advisory, or imperative*. Division of this kind is according to the functions or potencies of a thing.

In the line of *accidental divisions*, these can be multiplied indefinitely, since there are no certain rules regarding what is accidental. Still the more common ones are three: The *first* is the division of the subject into its accidents, e.g. one animal is *white*, another *black*. The *second* is the converse, a division of an accident into its subjects, e.g. one white thing is *snow*, another *milk*. The *third* is the division of an accident into other accidents, e.g. one white thing is *sweet*, another *bitter*, etc.<sup>1</sup>

<sup>1</sup> This arrangement of the kinds of division can be diagrammed as shown on p. 21.

The rules of division or sources of arguing are three and they are deduced from the conditions of a good division. *First*, there is a valid consequence, affirmatively or negatively, from the thing divided to the division and conversely. This is evident, since they are convertible. *Second*, when one member of a two-member division is denied, or when several members of a many-member division are denied, there is a good consequence from the divided whole to the positing of the member that remains. For example, a horse is an *animal* and *not rational*: therefore, it is *irrational*. *Third*, when the members of the division are really opposed, it is valid to go from the positing of one member to the negation of the other. This is evident because opposites are not able to be at the same time, at least speaking according to nature and per se.

Chap. 5

Argumentation

We must deal with the third kind of the means of demonstrative knowing in the third book, which considers this species directly, since it pertains to the third operation of the intellect. At present, while we are distinguishing the various means of demonstrative knowing, it is sufficient to note these three points.

Definition of Argumentation

The first point is the definition of argumentation. It is a “statement in which knowledge follows from something already known.” For example, if I said, *Peter is an animal, therefore he is a body*. Thus reasoning must be built up from, and consist of, three elements: the *antecedent*,

	<i>Nominal</i> —of own meaning, e.g. triangle: a <i>Per se</i> figure of three angles.	ÍPorMwe: of integral parts, e.g. human body: head, feet, hands.
	<i>Real</i> —of thing signified.	   <i>Essential</i> : of constituent parts, e.g. man: body, soul.
<i>Division</i>	1. Of subject into accidents, e.g. animals: black, white.	<i>Subord'native</i> : of subordinate parts.
<i>Per accidens</i>	2. Of accident into subjects, e.g. white things: snow, milk.	1. <i>Quidditive</i> : according to predication, e.g. animal: rational and irrational.
	3. Of accident into accidents, e.g. white things: sweet, bitter.	2. <i>Functional</i> : according to functions or potencies, e.g. soul: intellectual, appetitive.

or premises as inferring; the *consequent* as inferred; and the *mark of inference*, which is a linking together of antecedent and consequent that denotes the inference or the following of one from the other.

#### Species of Argumentation

The second point is that there are four species of argumentation, namely, syllogism, enthymeme, induction and example. These can be reduced to two, that is, to syllogism and induction; the enthymeme is a kind of imperfect or truncated syllogism and the example is one part of induction. However, argumentation is divided into these four species according as it manifests truth, which is what its quiddity consists of. For there are only two ways of manifesting truth: reasoning from principles known through the intellect; by going down to the sensibles and singulars, since the beginning of all our notions is there. If truth is manifest in the first way, it is through the syllogism, which consists of three propositions: *major*, *minor*, and *conclusion*; or, if it is an enthymeme, it consists of two propositions: the *antecedent* and *consequent*. And thus the enthymeme is an imperfect syllogism, because it gives one proposition for the antecedent and the syllogism gives two; and the syllogism's whole power of inferring consists in the union of two things in one third thing, whence it infers the union between themselves. If truth is manifested in the second way, it is induction, which does not infer from a connection with one third thing. From many singulars sufficiently enumerated, it infers universally that such is the case with all of them. And the example is reduced to induction. The example infers from one singular not the universal, but another like itself.

#### Other Divisions of Argumentation

The third point is that there are other divisions of reasoning besides those given. Thus, on the basis of the *mark of inference* one reasoning is *rational*, namely, one that uses the particle *therefore*; for example, *Man is an animal, therefore he is living*. Another is *conditional*, one that uses the particle *if*; for example, *If the sun shines, it is day*. Another is *causal*, which uses the particle *because*; for example, *Because man is rational, he is risible*. And the difference among these three is that for the truth of conditional reasoning it is sufficient that the consequence be good, even though the extremes are false. For instance, this conditional reasoning, *If man flies, he has wings*, is true, and yet the extremes are false. For the truth of rational reasoning it is necessary that the antecedent and consequent be true. And I say "for the truth." since where there is question of the goodness of the consequence, the true can follow even from the false, as we shall say below.<sup>1</sup> For the truth of causal rea-

<sup>1</sup> Book III. chap. 11. below p. 125.

soning it is necessary that the extremes be true and that the antecedent be the cause of the consequent. It is true that man is animal and risible, but it is false that he is risible because he is animal.

On the basis of *quality*, consequence is divided into good and bad. *Good* consequence is that in which the antecedent infers the consequent in such a way that the antecedent cannot be true and the consequent false. *Bad* consequence is that in which the antecedent does not infer the consequent, though it seems to infer, or signifies inferring. By reason of this signification it is called consequence but bad, because it does not infer; instead there is an antecedent that is true and a consequent that is false.

We shall speak of the rules for distinguishing good from bad consequences below<sup>1</sup> where we must deal expressly with errors in consequence.

## Chap. 6

## *The Proposition or Enunciation*

The main species of complete statement is the enunciation or proposition. There is a long discussion of this in Dialectics, because the proposition plays a very important role in syllogism and reasoning. And we take proposition and enunciation to have the same meaning, since this is the practice also among learned men, as is evident in the regular disputations, where we use the name *proposition* more than *enunciation*. So also St. Thomas<sup>2</sup> uses the name *proposition* for *enunciation*. However, following Aristotle, St. Thomas elsewhere<sup>3</sup> distinguishes the function of the proposition from the simple task of the enunciation; that is, that the proposition adds to the enunciation the notion of being put forward for the purpose of inferring something in reasoning.

### Definition of Enunciation

Thus, the enunciation is defined as a "sentence that signifies something true or false by declaring." For example, when I say, *A Man is an animal*. This definition is from Aristotle<sup>4</sup> and St. Thomas.\* "Sentence" is put in the position of genus; "signifies something true or false" in that of the differentia. By means of the latter the enunciation is distinguished from other sentences, complete or incomplete, that do not unfold a truth. The phrase, "by declaring," is used, not because it is formally present in every proposition, but in order to show how the verb in a simple proposition serves the purpose of signifying truth or falsity, that is, by way of asserting. This commonly takes place by the verb in the indicative mood,

» Book III, chaps. 11-14, below pp. 124-135.

<sup>1</sup> Suwi. *Theol.* I, q. 13, a. 12.

<sup>2</sup> *In I Anal. Post.* lect. 5. no. 3; *Sum. Tot. Log. Arist.* tr. 7, c. 1.

<sup>3</sup> *De Interp.* 4, 17a 2.

<sup>4</sup> *In I De Interp.* lect. 7, no. 2.

or by what ought to be reduced to it. For truth in the simple enunciation is signified assertively, both by affirming and denying. In hypothetical propositions, however, even though they do not always proceed assertively as in conditional propositions that are not in the indicative mood—e.g. *If you should hit Peter, he would kill you* and in others similar to this—still, from the meaning behind them, the truth of these propositions can be reduced to an assertion in the same way they can be reduced to categorical propositions.

Moreover, in order to clarify what it is “to signify something true,” notice in St. Thomas<sup>6</sup> that truth is in the enunciation as in the sign of an intellect that is true or false. But truth and falsity are in the mind (*i.e.* in the judgment of the mind) as in a subject, according to *Metaphysics*, VI,<sup>67</sup> and in the object as in a cause, since according to *Predicaments*<sup>7</sup> the sentence is true or false because the thing is or is not. However, here St. Thomas is speaking of a vocal or a non-judicative enunciation, when he says that truth is in an enunciation as in the sign of an intellect that is true or false. For where there is question of an enunciation that is a mental judgment, truth is in it as in a subject.

But still, since even the mental judicative enunciation has meaning and represents objective truth, we say further that to signify truth and falsity in a mental proposition is nothing else than to signify in the manner of joining and separating so that something is signified as assertible. Just as from the fact that some predicate is joined to or separated from a subject, it follows that it is conformed to, and in agreement with, the thing itself or is not conformed to it. And there is not only a conformity or non-conformity of assimilation, but of attribution and conjunction of predicate with the subject. For there is assimilation to the thing outside even in simple apprehension. And thus St. Thomas<sup>8</sup> teaches that a simple apprehension or a sensation is true, but does not know truth because it does not know the conformity of truth. It does not put one thing to another or take it away from another. Wherefore to signify the application of one to another, or better, to signify a thing by applying one to another in the manner of the ascertable is to signify truth and falsity. But the truth itself of the proposition is not the very signification of truth or falsity, but the conformity or agreement with the thing signified resulting from the signification. All of this they wish to express in brief who say that to signify something true is to signify that a thing is as it is in reality and that to signify something false is to signify a thing otherwise than it is in reality. However, this is not merely to signify qualifiedly, like the syn-categorematic, nor merely something simple, like the categorematic,

<sup>6</sup> *In j De Inierp.* lect. 7, no. 4.

<sup>7</sup> Aristotle, *Metaph.* VI, 4, 1027b 25. Cf. St. Thomas, *In VI Metaph.* lect. 4.-R.

<sup>8</sup> Aristotle, *Ca/c<*). 5, 4b 8.

<sup>8</sup> Skmj. *Theol.* I, Q. 16, a. 2.

but something composed, or something that is the application of one thing to another in an enunciative statement. Later<sup>0</sup> we shall explain how the very truth or falsity are not the essence of the proposition, but the signification is, from which the truth or falsity results. Also how one truth taken formally is neither greater nor less than another.

But notice that there are propositions that refute themselves or destroy their own truth, just as there are some that destroy their own possibility or their own necessity. And this happens when, from the identical verification of the proposition, it follows that the proposition is false; that is. it follows from the facts being just what the proposition says they are. For example, if I said, *Every proposition is false*, or *This proposition is false*, and show its verification; then from the fact that the case is as it signifies, it follows that the proposition itself is false. And such propositions are simply false because, though they have vérification, it is not unqualified truth, because falsity follows from it; while error is from any defect whatever, and that whence falsity follows is not unqualifiedly true.

## Ch a p. 7

## *The Divisions of Propositions*

We do not consider the division of propositions into true and false, which strictly is not a division, since it can fit the same proposition. In fact, truth and falsity are not formally in the proposition itself in so far as it is enunciative, but under the aspect of judging. Now the judgment pertains to assent and dissent; the enunciation to the joining of extremes; and this joining the judgment of assent works upon as upon its matter, as we shall say later.<sup>1</sup> If then we omit this division and treat only of propositions in so far as they are enunciative, all divisions of propositions are reduced to four principal divisions or heads.

### C a t e g o r i c a l   a n d   H y p o t h e t i c a l   P r o p o s i t i o n s

The first division is into categorical and hypothetical propositions. And this is an essential division, as we shall say in the passage referred to above, since it confines itself to the essential parts of which a proposition consists. Now the *categorical* proposition is one that has as principal parts a subject, a verb-copula, and a predicate. Certainly even<sup>1</sup> proposition must have a verb, as Aristotle<sup>2</sup> teaches; and St. Thomas<sup>3</sup> follows him. The subject is that of which something is said; the predicate that which is said of something. For example, in the proposition: *The man is white*,

\* *Log.* I, q. 5.

<sup>1</sup> *Log.* I, q. 5, a. 1.

<sup>2</sup> *Interf.* 5. 17a 9.

<sup>3</sup> *1 De iuteri.* lect. 1, no. 6; lect. 8, no. 8.

*man* is the subject, *white* is the predicate, and *is* the verbal copula. And since this proposition consists of these as its principal parts, it is called categorical, that is, predicative. And some call this proposition *simple*, because it is made up only of a verb and noun, as St. Thomas<sup>4</sup> says; nor is there another composition that is simpler. The *hypothetical* proposition, by some called “composite” or one by conjunction, is a proposition that has two categorical propositions as its principal parts, e.g. *If the man runs, he is in motion*. And thus the hypothetical and categorical proposition differ according to copulas and according to the extremes joined: because the hypothetical proposition does not unify by a verb, but by the particle *and* or *if*, and the like; nor does it join terms immediately, but propositions. And these copulas and parts differ essentially in the manner of their joining.

#### Universal, Particular, Indefinite and Singular Propositions

The second division is according to the quantity of propositions into universal, particular, indefinite and singular. And just as in natural things the quantity of a thing follows its matter, so in propositions quantity follows the subject, which serves as matter with respect to the predicate and copula. It is clear, however, that the extension or quantity of a proposition is taken from the plurality and extension of the subjects, which the predicate fits. Whence this division is accidental. Consequently, the *universal* proposition is one in which the subject is affected by some sign of universality. The signs of universality are *every*, *no one*, *anyone*, *neither of two*, and the like, which carry the notion of distribution to several. Wherefore such signs are not affixed to any except common terms, e.g. *Every man argues*.

But notice that sometimes in a proposition the subject of distribution is distinguished from the subject of predication, or enunciation. For example, in this proposition *Any mans horse runs*, *running* is predicated of *horse* as subject, whereas the distribution does not apply to the subject, but to *man*. And thus that subject of a proposition to which is affixed a sign of distribution is called the subject of distribution. And this distribution or universality is *unqualified* distribution, when it does not depend on, nor is it restricted by, some other antecedent term, whose resolution must be made prior to that of the distributed term. On the other hand, distribution is *qualified*, when it is dependent on a prior resolution. For example, suppose I say. *Any horse of man runs*. Although *horse* is affected by the sign of distribution, yet it is not universal without qualification, because it is restricted by *of man*. And we are not able to resolve this, that is, to descend below the term *horse*, before we descend

<sup>4</sup> *ibid.* lect. 8. no. 14.

below the term *man*. We shall explain this clearly in the chapters on Induction.<sup>5</sup> And thus, universality of proposition is *unqualified* when in its distribution and resolution or descent it is independent of the prior resolution of any other term. When, however, it is dependent, the universality is *qualified*.

A proposition is *particular* whose subject is affected by a particular sign, as in *Some man argues*. Particular signs are *some, some one, another*, and the like, which make the subject applicable to several but not in a distributive sense. The *indefinite* proposition is one in which the subject is a common term and is not affected by any sign, as in *Man argues*. A proposition is *singular* whose subject is a singular term, or is a common term affected by a sign of singularity, e.g. *Peter argues, This man argues*. And the singular term is one that can be predicated of one thing only and not of several.

#### Affirmative and Negative Propositions

The third division is into affirmative and negative propositions, which St. Thomas<sup>6</sup> calls a division of the genus into its species. An *affirmative* proposition is one whose predicate is affirmed of the subject, e.g. *The man is white*. A *negative* proposition is one whose predicate is denied of the subject. And thus affirmation makes a composition; whereas negation makes a division.

Consequently, since affirmation and negation are understood according to the copula, we ought to notice that the copula is twofold. One is the *principal* copula, which joins the predicate to the subject; the other is *less principal* (also called the *copula of involvement*), which is part of an extreme. For example, when I say, *Peter, who is learned, is just*, the *who is* pertains to the subject and constitutes one extreme which the copula bits on when it connects the predicate. And this last copula is the principal one. Some principal copulas are simple, some complex: *simple*, as when I give only one, e.g. *Peter is just*; *complex*, as when two copulas are given, e.g. *Peter is or was just*. And in the case of complex copulas, if each of them is denied or each affirmed, it is clear indeed that the whole proposition is affirmative or negative. The example. *Peter neither is nor was white*, is absolutely negative, and *Peter is and was white* is absolutely affirmative. If you said. *Peter is or was not white*, the proposition has formally *mixed quality*. However, a proposition will be called *virtually affirmative* if of itself it infers one affirmative proposition and *virtually negative* if it is inferred from one negative proposition. The reason for this is that if one proposition infers one affirmative proposi-

<sup>5</sup> I: 'k III, chaps. 2, 3, txrlow pp. 104-107.  
<sup>6</sup> In ! De Interj. lect. 8. nos. 4-6. 19-21.



tion, the inferred proposition cannot be verified unless the extremes have supposition. Consequently, it is necessary that even in its antecedent the extremes have supposition, since where there is good inference the antecedent cannot be true and the consequent false. Therefore it is necessary that a proposition of this kind, inferring an affirmative proposition by means of good consequence, be virtually affirmative; in other words, it demands for its verification the same thing that an affirmative proposition does, *viz.* supposition of the extremes. To exemplify, this proposition, *Peter is and teas not white*, is *virtually affirmative*, because it infers this one, *Peter is white*, which is absolutely affirmative.

Conversely, if one proposition is inferred from one negative proposition, it is called *virtually negative*, even though in itself it is of mixed quality; because it does not need for its verification anything except what a negative proposition requires, *i.e.* it is verified<sup>7</sup> without the extremes having supposition. The reason is that it is inferred from one negative proposition which is verified without the extremes having supposition, and consequently it will be verified in the same way as the proposition which infers it—in good inference the consequent cannot be false if the antecedent is true. For instance, this proposition, *Peter is or teas not white*, is inferred from this one, *Peter was not white*; and thus the first is *virtually negative*.<sup>3</sup>

Since a negative proposition has a negative copula and negation is by nature a malignant thing that does away with whatever it finds following it, a double negation makes an affirmation; the first negation destroys the second one. And in the same way, having power to distribute, if negation finds a distributed subject, it does away with the subject's distribution. Dialecticians call this "to immobilize." Thus, negation mobilizes, *i.e.* distributes, what is immobilized; and immobilizes what is mobilized, *i.e.* distributed. For example, if you said, *if every man argues, not every* has the same meaning as *some*, which is particular. See the chapter on Equipollence."

#### *De Inesse and Modal Propositions*

The fourth division is into *de inesse* and modal propositions. The *modal* proposition is one in which the verb or copula is affected by one of these four modes: necessarily, contingently, possibly, impossibility. For these modes affect the verb itself in its character and manner of composing the proposition and coupling it together. The *de inesse* proposition is one that couples and joins one extreme with the other independ-

<sup>7</sup> Lyons adds: "also."

<sup>3</sup> Lyons adds: "And thus the disjunctive proposition of mixed quality is virtually negative, while the copulative of mixed quality is virtually affirmative."

<sup>9</sup> Book II, chap. 18, below p. 84.

entlv of such modes, even though the verb or predicate has other modifying adverbs. The following are *de inesse* propositions: *Peter is white*, *Peter lives justly*. These are *modal* propositions: *Peter argues contingently*, *He necessarily sees*, etc. We shall discuss these modal propositions more fully when treating of Opposition.<sup>70</sup>

All these divisions arise from and are based on the copula, except the division into universal and particular, etc., which is based on the subjects quantity. Thus categorical and hypothetical propositions are distinguished according to the copula: the categorical consists of a verbal copula; the hypothetical of a juncture of propositions. Also, the affirmative proposition has an affirmative copula, the negative a negative one. The *modal* proposition has a copula affected by a modification that touches the composition itself, the *de inesse* a simple and absolute copula.

## Ch a p. 8

## *The Matter of Propositions*

In a proposition the subject with respect to the predicate plays the role of quasi partial matter, because the predicate is said of the subject and in a sense is received into it. Again, subject and predicate are called the quasi matter of the copula, because the very union between subject and predicate takes place, or does not take place, in the correct manner, according to the relation and compatibility of the predicate to the subject. And this relation of the terms, which are the matter of which the proposition is composed, is called absolutely the *matter of propositions*. And the matter of propositions is threefold: natural, contingent, and incompatible. *Natural* is that in which one term is of the essence of another. Thus, they ground either an essential relation, *e.g.* if you said, *Man is an animal*; or a relation necessary to a proper characteristic, *e.g.* *Man is risible*. *Contingent* is that in which the predicate accidentally fits the subject and can be present or absent without the subject's ceasing to be, *e.g.* *Peter is just*. *Incompatible* is that in which the predicate is repugnant to the subject, *e.g.* *Man is a stone*. And natural repugnance is sufficient, for what was in incompatible matter, *viz.* Cod and man, was made supernatural!// into natural matter, when the Word was made man.

Predication is identical or formal; also, direct or indirect. *Identical* predication is that in which the same thing is predicated of itself, or a synonym of a synonym, *e.g.* *Man is man*. *Formal* is that in which a form, or what is equivalent to a form, is predicated of another, *e.g.* *Man is just*, *Man is an animal*. Predication is *direct* in which something with the nature of form is predicated of something having the nature of subject. And this form may be essential, as a definition or one of its parts predi-

cated of the defined and a more universal concept of its inferior; or the form may be accidental to the subject. And for this reason direct predication is either essential or accidental. *Indirect* predication is that in which, opposite to the above, the subject is predicated of a form, or the defined is predicated of the definition, e.g. *The colored thing is man, The rational animal is man*. And these predications are not properly essential or accidental. But more about these later?

## Ch a p. 9

## *The Properties of Propositions and The Order of Considering Them*

After explaining the nature of propositions, their divisions and diversity of matter, our next step in the order of teaching is to treat of the properties of propositions. Now some properties follow precisely the extremes or parts of the proposition, others the proposition as a whole. Properties of *parts of the proposition*, which fit only the parts in so far as they are within a proposition, are five: supposition, ampliation, restriction, transfer, and appellation. The properties that follow *the whole proposition* are three: opposition, conversion, and equipollence. And these properties can be found both in *de inesse* propositions and in modal propositions. And therefore we deal first with the properties of the extremes of the proposition and then with the properties of the whole proposition; of the *de inesse* propositions first, and of modals second.

## Ch a p. 10

## *Supposition*

### Def in it i o n o f S u p p o s i t i o n

Supposition is defined as “the acceptance of a term for something of which it is verified.” Many of the more recent logicians do not admit this definition. They think that supposition is merely the acceptance of a term for the thing which it signifies. Nor do they distinguish supposition from the signification or the exercise of signification, where the sound, in the act of signifying, is substituted in place of the thing. Whence they reject that ancient and accepted principle: that some propositions have subjects with no supposition and consequently, if affirmative, are false. Their reason is that every noun, whether in the proposition or outside it, has supposition from the fact that in the intellect it is substituted for something. Also, Aristotle says<sup>1</sup> that since we cannot bring things inside us, we use names in place of things.

At any rate. St. Thomas evidently distinguishes- between the signifi-

<sup>1</sup> *Lofl.* I, q. 5, a. 2.

<sup>2</sup> *De Soflt Elen.* I. I. 165a 6.

<sup>2</sup> *De Dut. Dei.* q. 9. a. 4. corp.; a<sup>2</sup> 6.

cation and supposition of a noun. The same conclusion follows from the text<sup>3</sup> where he admits the rule of the Sophists: "substantive nouns stand for things whereas adjectives do not stand for but couple together." Therefore to St. Thomas signification is not the same as supposition.

Finally, St. Thomas<sup>4</sup> assigns the reason for this where he says: "that in any noun there are two things to consider: that because of which the name is applied, called the quality of the noun; that to which the name is applied, called the substance of the noun. And properly speaking the noun is said to signify the form or quality, but is said to suppose for the thing it is applied to." Thence he infers in the solution to the first objection, "that diversity of supposition does not make equivocation, but diversity of signification does." Therefore St. Thomas quite clearly distinguishes supposition from signification. We also, following his words, say that since the signification of a noun is a kind of substitution for the thing signified, then *substitution* can be understood in two senses. In one sense, substitution is *representative*: where the sounds themselves make present within us the things signified. And this is not supposition, but signification. In another sense, substitution is in a way *applicative*; where the intellect, after it accepts the sound's representation and signification, applies the noun itself variously in propositions so that it stands for a thing to which it wants to apply something. For instance, when I say: *The man is white*, *man* not only represents human nature to me, but I also substitute it for what I want to apply *white* to by means of the copula *is*. Whence the intellect inquires whether in relation to this copula there is given truly and properly a subject which is man; and if there is one, the intellect truly substitutes such a subject in the proposition. But if none is discovered, there is no substitution; for example, if I were to say, *Antichrist was good*, *Adam is white*. I make no substitution, nor do these subjects have supposition. For there is no Antichrist for the copula *was*, and no application; there is no Adam for the copula *is*. Thus these are called propositions with non-supposing subjects.

#### Definition Explained

In this way then the definition of supposition is explained. Supposition is "the acceptance of a term," that is, a substitutional acceptance made by the intellect with reference to some copula in the proposition. And the acceptance is considered as passive, from the side of the term accepted, not as active from the side of the intellect doing the accepting. The definition continues: "for something of which it is verified." Take this to mean: for what verifies that acceptance of the term, or its substitution. It does not mean: for what verifies the proposition. For truth or

<sup>3</sup> *Sum. Ttil'ot.* I. q. 30. a. 5 a<sup>1</sup> 5.

<sup>4</sup> *In 111 Sent.* d. 6, q. 1. a. 3.

verification of the proposition is not necessary for supposition, since even in false propositions there is supposition. For instance, when I say, *Wan is a stone*, *man* has supposition because there truly is a thing which fulfills the being *man* with respect to this copula *is* and according to its demands. What is required for supposition is verification of the acceptance of the term and of its substitution, *i.e.* that there truly be, and be according to the demands of the copula of the proposition, a thing which fulfills that name and for which I substitute the name with reference to that copula. Thus, in order to confirm and clarify the supposition of a term we use a proposition that shows it with reference to the copula. For instance, if I say, *Man is white*, I show that *man* has supposition because with reference to the copula *is* it is true, once a man has been pointed out, to say: *This is a man*. And in this proposition, *Adam was*, *Adam* has supposition, because this individual, supposing Adam has been indicated, once was. Also, if I say, *Man is a noun*, the supposition of the subject is verified, after the sound has been demonstrated, by saying, *Man is the term "man,"* or *Man is a sound*. And the same is to be said of other propositions. However, this demonstration, when I say, *This is* etc., need not be only for the senses; it suffices to demonstrate the thing to the intellect, since past and future things cannot be pointed out to the sense. Nor can hidden things; for instance, if I say, *The gold is not being pointed out—viz. gold in the ground—gold* has supposition because it is verified by saying: *This (gold pointed out by means of the intellect) is gold*. And it is not pointed out through the senses; otherwise the proposition would be false, just as it would be false if "not pointed out" also meant not pointed out to the intellect. Thus the proposition that demonstrates the supposition does not give it verification, but points out the supposition and makes it clear. And therefore, when we say that supposition is the acceptance for something, of which the acceptance is verified, we mean it in this sense: of which it is verified in a proposition in which it is given as if being in reality; and not in a proposition in which it is pointed out as if present in signification as in the manifestant or Lester of supposition.

#### Conclusions Concerning Supposition

From what has been said we conclude that a term has no supposition outside the proposition. For granting that the term and any significant sound outside the proposition have meaning as a term; yet I do not apply it and substitute it for something by verifying it according to the demands of some copula unless it is in a proposition. Only in a proposition is there a copula and also the application of one thing to another in the manner of predicate and subject. And thus applicative substitution for something verified according to the demands of the copula, which is supposition, has no place outside the proposition; whereas sub-

stitution that is significative and ordered to the composition of a proposition does have place.

We conclude secondly, that supposition, as explained in the definition, is so generally defined that it can be applied also to adjectives, when they are taken in their adjectival sense. For instance, if I say *Peter is white*, *white* also is accepted for something of which it is verified and which fulfills the nature of a white thing according to the demands of the copula. However, if supposition is taken more strictly for that which is not only to be accepted for something, but especially to supply a supposit to the verb, which is the stricter way of supposing, then adjectives do not have supposition in this sense; rather they join their own formally signified objects to another supposit, as the ancient logicians used to say.

## Ch a p. 11

## *The Divisions of Supposition*

Since supposition is the acceptance of a term for that of which it is verified, it includes a reference and relation to three things, and according to these divisions are made. Supposition includes a reference: *to the thing signified*, for which it supposes; *to the verb*, in relation to which it supposes; *to the modifying sign*, by which it is modified in its supposing.

### Division\* Based on Thing Signified

First, then, from the viewpoint of the thing signified, supposition is divided into proper and improper. *Proper* supposition is the acceptance of a term for that which it properly signifies or represents. For instance, when I say. *The lion roars*, *lion* is taken for the animal, which it signifies properly. *Improper* supposition is the acceptance for what the term signifies improperly and in a sense metaphorically. For example, when I say. *The lion of the tribe of Juda has conquered*, *lion* is taken for Clirist, whom it does not properly signify. Take the following propositions: *Christ has conquered*, *The lion of the tribe of Juda has conquered*. The subject of each proposition is accepted for the same individual, viz. for Christ, but by means of a different concept and representation. For in the first Christ is represented absolutely and simply because properly. But in the second Christ is represented with the connotation of a real lion. And thus the noun *lion* improperly represents and supposes for Christ because it represents him by connotation, not by something simply and directly signified. And therefore these forms of metaphorical language have an elegance and delightfulness, because they signify things not in a simple manner but in a round-about way and by connotation.

Proper supposition is divided into three species, namely, material, simple, personal.

*Material* supposition is the acceptance of a term for itself, i.e. pre-

ciscly for the sound. This is why we put into the definition of proper supposition: the acceptance of a term for what it signifies or represents properly. For when a term has material supposition, it represents itself but does not signify, as when I say, *Man is a noun*, *Rlitiri is a sound*—unless perhaps you take them to mean “the sound *man*” and “the sound *hilitiri*” Material supposition is indicated by three uses. First, if a term is used that has no meaning, as *blitiri*, *scindapsus*; these can have no supposition except for themselves. Second, if a sign of materiality is used, as *this speech*, *this term*, etc. They present a thing designated materially by these signs. Third, if something is used as a predicate that signifies not a thing but a term; for example, if you said, *Man is a sound*, *Man is a noun*.

*Simple* supposition is the acceptance of a term for what it primarily and immediately signifies, and not mediately. For example, if I say, *Man is a species*, *man* supposes by simple supposition. Notice here that nouns signify two things: 1) what is primary and formal; 2) that in which this primary character is found. And the latter is in a way the secondary thing signified by the noun, because what the noun signifies is found in it as in a supposit and a material bearer. For instance, *man* primarily and immediately signifies human nature; but mediately, everything in which human nature is found, *i.e.* all individual men. Therefore, simple supposition is the acceptance of a term for that which is signified primarily and immediately in this precise sense that it does not pass on to the thing signified secondarily and to those things in which the primary signified is found, but stands exclusively for the primary thing signified. And thus it is the simple and precise supposition that stops with the immediate and primary thing signified. It is not the sort of doubled supposition that passes on to the secondary and mediate thing signified. For instance, when I say, *Man is a species*, *man* is not taken for individuals but for man as such and prescinding from individuals. Thus it is invalid to argue. *Man is a species, Therefore Peter is a species*. And consequently, in simple supposition appellation always intervenes, because the predicate fits the subject under some precision ami formality by which it does not go down to the individuals.

*Personal* supposition is the acceptance of a term for the individuals or those that are signified materially and mediately. And it is called personal because it fits the “persons” or supposits of some thing. When I say, *Every man is an animal*, this fits the individuals also; and it is quite valid to descend. *Therefore this man is an animal, etc.* Consequently, personal supposition is capable of ascent and descent; simple supposition is not.

#### Division Based on Verb

Second, from the standpoint of its reference to the verb or copula, personal supposition is divided into essential, or natural, and accidental. *Natural* supposition is the acceptance of a term for all the things which it was formed to be taken for. In other words, it is the acceptance of a term for that which the predicate fits intrinsically and essentially; as in, *Man is an animal*, where the verb is abstracts from time in its verification. *Accidental* supposition is the acceptance of a term for those things only that verify the term according to the requirements of the verb. In other words, it is the acceptance of a term for that which the predicate fits accidentally and not intrinsically, as in *Man is just*, *Man argues*.

#### Division Based on Signification

Third, from the standpoint of signification, supposition is divided into common and singular. *Common* is the acceptance of a common term for its inferiors, as in *Man disputes*. *Singular* and discrete supposition is the acceptance of a singular term for a single thing, as in *Peter argues*, *This man argues*.

#### Division Based on Signs

Fourth, common supposition, from the standpoint of the signs, is divided into determinate and indeterminate. *Determinate* supposition is the acceptance of an indefinite common term or one affected by a sign of particularity, for example, *Man argues*. *Some man argues*. *Indeterminate* supposition is the acceptance of a common term having a sign of universality or having also some special sign of confusion; for example, *Every man argues*, *Only man argues*. There are two kinds of *indeterminate* supposition, namely distributed and confused. *Distributed* is the acceptance of a common term that is affected immediately by some sign of distribution, as in *Every man argues*, where *man* supposes distributively. *Confused* supposition is the acceptance of a term that is affected mediately by an affirmative universal sign, or by some special sign of confusion. An example of the first: *Every man is an animal*. Here *animal* has confused supposition. Examples of the second: *Only man argues*, *An eye is required in order to see*. Here *man* and *eye* have confused supposition. The special signs of confusion we shall explain in the next chapter. Again, this confused supposition is either alternated or collected. *Alternated* is the kind we have explained in the examples given above. *Collected* has its term affected by a collective sign. For example. *All the Apostles are twelve*, *All the planets are seven*; here



*Apostles* and *planets* suppose confusedly added together, or collectively.<sup>1</sup> Also it is customary to distinguish these suppositions according to the inferential ascent and descent proper to each. For the descent due distributive supposition is copulative; that due confused supposition is either alternated or collected. We shall explain below<sup>2</sup> what copulative and disjunctive ascent are, also alternated and collected ascent. Now ascent and descent are due solely to personal supposition, since ascent and descent are grounded on a reference to individuals. We go from the universal down to these individuals or we go from the singulars themselves up to the universal. And since personal supposition alone can be taken for individuals, the best way to distinguish the various kinds of personal supposition is according to the difference in ascent from, or descent to, individuals. Since descent and ascent are motion of a sort, a term under which we can descend or ascend immediately and independently of anything else is said to suppose or stand for movably. But when immediate descent or ascent is impossible and depends on another term's resolution (resolution is the same as descent and ascent), the term is said to suppose immovably. And alternated and collected descent are not considered to be simply the resolution of a tenu, because the descent is not made by means of a proposition that is clearer regarding its truth, as resolution requires, but by means of an enumeration of the term itself.

<sup>1</sup> It may help the reader, for purposes of quick reference, to have the divisions of supposition in outline form.-Tr.

Supposition from view- point of	Thing signified	Proper	Material: " <i>Blitiri</i> is a sound," "This <i>speech</i> ," " <i>Man</i> is a sound." Simple: " <i>Man</i> is a species."			
			Personal:	Natural: "Every <i>man</i> is an animal," " <i>Man</i> is an animal."		
				Accidental: " <i>Man</i> is just."		
		Improper: "The <i>Hon of Juda</i> has conquered."				
		Common	Determinate: " <i>Man</i> argues," "Some <i>man</i> argues." (disj. ascent)		Distributed: "Every <i>man</i> argues." (copul. asc.)	
			Indeterminate:	(Alternated: "Every' man is an <i>animal</i> ," "Only <i>man</i> argues."		
				Confused	(asc.)	
				Collected: "All the (coll. asc.) <i>Apostles</i> are twelve."		
			[Signs modifying			

<sup>2</sup> Book III, chaps. 2, 3, below pp. 104-107.

For example, if I say, *Every man is an animal*, alternated descent is due the term *animal*, as this: *Every man is this animal or that one or that one*. In the example, *A horse is necessary for riding horseback*, the descent is alternated: *This horse or that one or that one is necessary for riding horseback*. And this enumeration does not clarify and resolve the proposition's truth; it only enumerates the terms. The same is true of *All the Apostles are twelve*, which is resolved in this way: *This Apostle and that one, etc. are twelve*.

## Ch a p. 12

## Rules of Supposition

In order that determinate, distributed and confused supposition be better understood, it is customary to give some rules that are general and apply to all; and others that apply especially to relative terms, since relatives present a special difficulty in resolving their supposition.

### Signs Affecting Supposition

Yet before the rules are given, we must presuppose that there are some signs, or marks and syn-categorematics, that affect terms in order to make them stand universally or particularly. In this way they produce supposition that is distributed or determinate or confused.

Some *signs of universality* are affirmative, some negative, some a mixture of both. *Affirmative signs*: *every, anyone, all, entire*, etc. *Negative signs*: *none, no one, not, neither*. *Mixed signs*: *contingently, only*, and others that are broken down into an affirmation and a negation. For instance, *Man is white contingently* which is broken down: *Possibly man is white* and *Possibly man is not white*. Again, *Only man is rational* is broken down; *Every rational being is a man* and *Nothing else besides man is rational*. Further, some signs of universality or distribution are complete, namely, those that include no particularity, as *every* and *no one* taken absolutely. Others are signs of universality, or distribution, that is not complete, like *the other, neither of two*, and *everything* applied to classes of singulars. Also, the purely copulative *and* is a sign of universality, as when I say, *Peter and Paul are animals*. Here *and* has the force of universality because it joins several individuals.

*Particular signs* are *some, a certain one, not none*, etc.; also the particle *or*, which does not join terms, but separates them. Special signs of confusion, *i.e.* those which do not distribute but rather mix together, are: *all* taken collectively; *only*, as when I say, *Only man is a reasoner; it is required*, and *2 promise* and the like, such as. *A horse is required for riding horseback, I promise you a book, Twice I sang Mass*. In these propositions the term is taken confusedly, since it is not legitimate to ascend or descend from it.

Between affirmative and negative signs of distribution there is this difference that the force of affirmative distribution stops with the term immediately affected and does not go on to the mediate one. It leaves the latter term confused; for example, if I say, *Every man is an animal*, only *man* is distributed, whereas *animal* is confused. And nearly ever}' confused supposition arises from some mediate universality, on which its resolution depends either formally or virtually. Thus *only* is a sign of confusion for the reason that it has one exponent where the term affected by *only* follows mediately upon one universal. For instance, if I say, *Only man is rational*, the proposition is expounded by this one, *Every rational being is a man*. Here *man* follows mediately a distributed universal. And if I say, *To ride horseback requires a horse*, this is equivalent to *All horseback riding requires a horse*; or to *There cannot be any horseback riding without a horse*. Here *horse* follows upon an affirmative universal. Also, when I say, *Twice I sang Mass*, *twice* has a copulative force' and is a sign of universality. Therefore, in nearly even- case confused supposition arises virtually or formally from a mediate affirmative universality on which it depends. On the contrary, negative universality distributes a term in the immediate and mediate position, because negation distributes all that it finds after itself; as in *No man is a stone*, both *man* and *stone* are distributed.

#### SIX RULES FOR DETERMINING SUPPOSITION

Therefore we lay down six rules for recognizing suppositions:

1. Ever}' term with no sign or with a particular sign has determinate supposition. Examples are: *Man argues*, *Some man argues*. This supposition is called determinate because it ought to be verified in a determinate supposit and not vaguely in some being according to a collected or alternated enumeration, as in confused supposition; nor in distribution and universality, as in distributive supposition. And we do not call it indefinite supposition even though it applies to the term in an indefinite proposition, such as *Man argues*. Here *indefinite* is used with reference to the proposition, because its truth can be grounded in one individual only or in many. Whereas the supposition of the term is not verified indefinitely or vaguely but by pointing out definitely this individual or that one in supposition that is determinate.

2. Ever}' term affected immediately by a universal affirmative sign or one affected immediately or mediately by a negative universal sign, has distributive supposition. In the example, *Every man is an animal*, *man* is taken distributively; and in *No man is a stone*, both terms are taken distributively.

» Lyon adds: "i.e. once and again, where *and* is a sign of universality."

3. Every common term that mediately follows a universal affirmative sign, or stated more generally, every term that depends in its resolution on some prior universality, whether it depends formally in itself or virtually in its exponent, has confused alternate supposition.<sup>2</sup> That is to say, only an alternated, not a disjunctive, ascent and descent is proper to such a term. In the example, *Every man is an animal*, *animal* has confused supposition. In *Only man is rational*, *man* has confused supposition, because one of its exponents is this, *Every rational being is a man*, where *man* has confused supposition.

4. A common term affected immediately by a collective sign has confused collected supposition. An example is *All the Apostles of God are twelve*, because from *Apostles* you can ascend only collectedly, not copulatively.

5. If two universal signs simultaneously affect the same term, then you must see how it remains after the first negation or universal sign is removed; and if it remains distributed with reference to a term having determinate supposition, then it originally had confused supposition; if however the term remains distributive with reference to a term having confused supposition, it originally was determinate. For example, if I said, *No man is not an animal*, then when the first negative, *i.e.* the *no*, is taken away, *animal* becomes distributed with reference to *man*, which is determinate. Thus originally *animal* had confused supposition. However, if I said, *Not every man is an animal*, then when I take the *not* away, *man* becomes distributed with reference to *animal* which is confused. And thus *man* originally had determinate supposition.

6. In a complex term where one part is the determinant and the other the determinable—for instance, if I said, *The horse of the man*, where *of the man* determines and restricts *horse*—and when the terms have one acceptance, the part that determines cannot be resolved before the whole complex is resolved.<sup>3</sup> But if the parts do not have one acceptance, each part can be resolved before the whole is. For example, if you said, *The man's horse is an animal*, or *The man's every horse is an animal*, in both cases you can ascend or descend according to the general rules. And the complex is said to have one acceptance when the oblique term conics after the direct, because it makes practically one term with it. For to say, *The horse of the man*, is the same as saying, *The horse possessed*. The complex has several acceptances when the oblique term comes first, as in *The man's horse*, because the terms are taken as having

-Lyons adds: "And finally every term immediately affected by some special sign <math>\llcorner</math> confusion. front among those given above, has confused alternate supposition. That is to say, etc."

: Lyons adds: "For instance, if you said, *The horse of the titan nuts*, you cannot descend below *titan*; before you descend below *horse*."

different acceptances, or as different terms capable of a different supposition and resolution. See this point later.<sup>4</sup>

With respect to relatives, note that we deal with the grammatical relative, as *who*, *another*, etc., and not with the logical relative which pertains to the predicament of relation. The grammatical relative is defined as what is "recollective of a thing given before."

Divisions of Relatives

The relative is divided into relative of substance and relative of accident. The relative *of substance* is that which brings back its antecedent in the manner of a substance, as *who*, *that one*, etc. The relative *of accident* is that which brings back its antecedent in the manner of a denominative, as *what kind*, *such a kind*, etc. And each member of the above division is either a relative *of identity*, namely, what brings back and has direct acceptance for what its antecedent has; for example, *Peter is learned and he argues*, *Snow is white and such is a swan*; or a relative *of diversity*, namely what is accepted for something other than its antecedent is, yet brings back its antecedent indirectly. For example, *Peter argues and another talks*, i.e. other than Peter, where *than Peter* is brought back indirectly. Also, *Snow is white and the raven is otherwise*, where *otherwise* brings back an accident other than its antecedent.

Finally, another kind of relative is *reciprocal*, namely, what signifies a kind of going back upon its antecedent, as *A man loves himself*, *Peter is himself*; and *non-reciprocal*, that namely which does not signify such a regression, as in *Peter is white and he talks*, *Peter who talks is white*. And the going back consists in this that the reciprocal relative not only brings back the antecedent as subject but also as predicate; for it joins the one thing to itself. By contrast, the non-reciprocal brings back its antecedent as subject, and then joins something else to it or separates something else from it.

\**Log.* I, q. 7, a. 2, arg. 5. In this passage John of St. Thomas considers the contradictions of propositions having an oblique term. Consider:

(1) *Every horse of any man runs.*

(2) *Some horse of any man does not run.*

If (1) is true, then (2) is false and vice versa. That is, the contradictory<sup>1</sup> of (1) is formed by changing simply the quantity of the direct term, leaving the oblique term what it was, and negating the proposition. Now consider:

(3) *Every man's every horse runs.*

(4) *Some man's every horse does not run.*

(4) is not the contradictory of (3), because both can be false, where one horse of some man does not run. The contradictory of (3) must read this way: *Some man's (some) horse does not run*. This seem to prove the point, *that horse of man* has a single supposition; whereas *man's horse* is capable of different suppositions and therefore of different resolutions.-Tr.

Thus for relatives there are four rules.

The *first rule*, concerning the resolution, or exposition, of the relative: The relative *who* in one proposition is resolved, or expounded, by means of one copulative proposition signified by the term *and he*. For instance, if you said, *Peter who is learned argues*, it is resolved in this way: *Peter is learned and he argues*. *Man is an animal who is rational*, is resolved: *Sian is an animal and he is rational*.

But notice two things in resolving the relative. First, that sometimes the relative is a part of an extreme and together with a copula of implication. For example, if you said, *Peter, who is learned, argues, who is learned* pertains to the subject and makes one extreme with it; and thus that copula is bound up with one extreme and is called a copula of implication. Consequently, the relative is not always resolved immediately, but depends on the resolution of its complex. And this happens as often as the copulative proposition by which it must be resolved has some part false if it be resolved immediately. Thus, if you said, *Every animal which is rational is risible*, it is impossible to resolve *which* immediately, for the meaning would be: *Every animal is rational and it is risible*, where the first half of the copulative proposition is false. Rather, it is necessary first of all to descend below that distribution, and at that point the relative is resolved. Second, that when one affirmative has a copula of implication after *who*, it is resolved immediately by means of a copulative proposition, and its contradictory ought to be resolved by a disjunctive proposition. For instance, this proposition, *Some animal which is rational is risible*, has this contradictory, *No animal which is rational is risible*. This latter proposition cannot be resolved by a copulative proposition, as its affirmative can, but by a disjunctive proposition. The reason is (that another copulative proposition is not the contradictory of a copulative, because it has the same universality owing to the *and*. Its contradictory is a disjunctive proposition. Therefore, in order to avoid these difficulties it is better not to resolve the relative *who* by means of a copulative proposition, unless you have first made the descent and resolution of the whole complex into singular propositions.

The *second rule*, concerning the restriction of relatives: Where the resolution of the relative is made by a copulative proposition, the relative of one proposition brings back restrictively its antecedent that was given in the other. In the example, *Animal is rational and it is risible*, it brings back animal restrictively, namely, that animal which is rational. And to bring back restrictively is nothing else than to bring back the antecedent for that supposit of which it is verified. The meaning is not that it brings back all the terms found in the antecedent's categorical proposition. For instance, if you said, *Every man is an animal and he is*

*risible, he* does not mean every man. since there is nothing that can be pointed out as every man; rather, it means that man who is an animal and of whom it can be verified that he is an animal.

The *third ride*, for the supposition of the reciprocal relative: The reciprocal relative supposes through the supposition of its antecedent, so that by descending or ascending from the antecedent the descent from the reciprocal relative takes place. And some call this "imaged supposition." *i.e.* enclosed in the supposition of another, because it does not require any other supposition than that of its antecedent. In the example, *Afán loves himself, himself* supposes determinately just as *man* does. And in *A mother loves her son, her* is a reciprocal of a derivative type and, for the connotation which it includes, supposes just as its antecedent does. For *her* connotes mother indirectly, that is, the son of the mother, and thus according to what is connoted, supposes indirectly like its antecedent.

The *fourth rule*, for the supposition of the non-reciprocal relative: This relative does not suppose with its antecedent's supposition, but according to the nature of the signs that modify it. just as other terms do. In the example. *Every man argues and he speaks learnedly, he* does not suppose distributively, but determinately. And in *Some animal is rational and every man is that, that* supposes confusedly.

## Ch a p. 14

## *Ampliation, Restriction, Transference*

### Defin it ion\* of Amplia tion

Ampliation is defined as "the extension of a term from a lesser to a greater supposition." For example, *Man can be just* is extended to possible men. Restriction is "the contraction from a greater to a lesser supposition." The example. *The man who is just is wise*, does not stand for even\* man, but only for the man who is just.

In order to understand these definitions, notice that a term can be amplified and restricted in two ways: first, with reference to more or fewer supposits which it fits; second, with reference to more or fewer times when it is verified. Only the first way of amplifying and restricting is found in a common term, since only the common term has individuals to which it is applicable. Consequently, ampliation and restriction of this kind is found only in personal accidental supposition. For simple supposition does not go on to individuals; and natural supposition applies to all absolutely; only accidental supposition can apply to more or fewer. *Every man is colored* is said of more than is *Some man runs*. And *The just man is wise* is said of more than is *The man is wise*. The second way of amplifying and restricting applies also to a singular term, since something singular can be verified at several different times.

And then the term is said to be amplified as regards the differences of time, when it can be verified at several times, that is, in differences of time taken alternately, or one by one. For if the term supposes with reference to more times taken copulatively, it really is restricted. Thus, if I want to verify the fact that some man, who is or was, is white, this fact is more easily discovered than if I wanted to verify it of some man who is and was. Therefore, the first is amplified in more suppositis, the second is restricted. In natural philosophy, it is true, the differences among times are only three, *scil.* present, past, and future; but in logical ampliation there are five: present, past and future, possible and imaginable.

#### RULES FOR DETERMINING AMPLIATION

There are some rules for determining when a certain term is amplified.

1. In propositions that have a copula of past time, the term antecedent to the verb is amplified to what is or was; the term, however, that follows is restricted to what was. In the example, *Peter was white*, *Peter* can stand for one who now is and was or who only was and now is not; but *white* can stand solely for a past white thing, since a present white thing is not verified through *was*, but through *is*, in so far as it is present, even though it were otherwise in the past. Similarly, if a proposition has a copula of future time, the term preceding the verb is amplified to what is or will be; whereas the term that follows is restricted to what will be, as in *Peter will be white*, *Antichrist will be a sinner*.

Understand, however, that it is always required for the antecedent term, which is amplified, to have been if the copula is of past time, and will be in the future, if the copula is of future time. Otherwise the proposition would not be verified, because the extremes would not rightly be joined. Yet ampliation consists in this that the term stand for something in the past or future in such a way that it could also be verified of a present subject by means of the same copula, provided it also was or will be.

2. A term signifying a beginning amplifies all the terms before and after it to what is or will be; a term signifying cessation, to what is or was; for instance, if you said, *Motion begins to be*, *Motion ceases to be*. The same holds for a term signifying the action of beginning or destroying, or of priority and posteriority. For it amplifies to the present and future the term to which the action of beginning applies, as in *Peter builds a basilica*; or to the present and past if the term signifies destroying, as in *Peter tears down the house*. *House* and *basilica* are amplified respectively to what is or will be, or to what is or was.

3. *Can be* and *possible* in a proposition amplify all terms to pos-



sibles; for instance, *Man can be white* is verified also of possible man and possible white. The same is found in terms signifying aptitude, since aptitude is a kind of possibility. However, subjects are amplified to possibles if aptitude for existing is signified, and not merely for acting, as in *Peter is generable or corruptible*. But this proposition, *Peter is risible or reasonable*, does not amplify the subject, because the aptitude to act supposes the *esse* of the subject; though in the case of a proper modification it would apply to the subject, even on the supposition that the subject did not exist.

4. The term *imaginatively* and the verb *imagine* amplify all antecedent and subsequent terms to the imaginable; for instance, *Body taken imaginatively is a chimera*. Similarly, a term signifying an interior act of the soul, as *I wish, I understand*, etc., can amplify to the imaginable the term on which it hits as its object. For example, *Peter understands chimera* amplifies *chimera* to an imaginable thing.

#### Rest r i c t i o n

Restriction is the contraction from a greater to a lesser supposition. And restriction can take place with reference: a) to time, as in *Peter who was will not be*; b) to gender, *scil.* feminine or masculine, as in *Some man is white*, if it be taken for men alone or for women alone; c) to supposits, by means of a conjoined adjective or genitive of possession, as in *A white man runs, The horse of the man does not run*; for the possessive genitive restricts like the adjective.

Restriction can also take place by means of: a) a copula of implication, as in *Peter who is just is learned*, b) the simple addition of an adjective, as in *Peter the just is learned, Peter who passed away will not be, The late Peter will not be*. In fact, you will best understand the relation of a copula of implication to the supposits it restricts to, and to the time it refers to, if you reduce it to a participle acting as an adjective. For instance, *Peter, who is, will be*, is clarified thus: *Existing Peter will be*. Also, *Antichrist, who is not, will be: Not-existing Antichrist will be*.

#### R u l e s o f R e a s o n i n g W i t h A m p l i a t i o n a n d R e s t r i c t i o n

The rules of reasoning in cases of ampliation and restriction are the same, because the broadened and the unrestricted are the same and are taken for what is higher, or more common; the less broad or restricted, for what is lower. The custom is to give six rules, but they are reduced to two. The reason is that consequence proceeds in only two ways: either from the broad to the not-broad, *i.e.* from the higher to the lower: or conversely, from the not-broad to the broad, *i.e.* from the lower to the higher.

1. When you proceed from the broad to the not-broad, or from the unrestricted to the restricted (for they are the same) the consequence is legitimate: in affirmative propositions if you proceed with universality of the broad term, and co-existence of the not-broad is given; in negative propositions, even without the co-existence of the not-broad term. But to proceed without universality of the broad or unrestricted term is never legitimate, neither in negatives nor in affirmatives? By co-existence we mean the affirmation of the existence of some subject. For instance, if I said, *Every man is white*, I cannot conclude: *Therefore Peter is white*, unless I should add co-existence: *and Peter is*, which shows that this individual is given. But if I said, *No man is white*, even without co-existence the conclusion is, *Peter is not white*, because neither supposition nor existence of the extremes is required for negative propositions.

2. From the not-broad to the broad, or from the restricted to the unrestricted, the consequence is legitimate in the opposite way, namely: in affirmatives, if you proceed to the broad without universality of the broad term and also without co-existence of the not-broad; in negatives, if you reason without universality of the broad term and with co-existence. For instance, this is valid: *Peter argues, therefore a man argues*; also, *Peter does not argue and he is, therefore some man does not argue*. Without co-existence, however, the consequent could happen to be false, in case only Paul were in the world and he argued. For then every man would argue and it would be a true antecedent, that Peter does not argue because he is not. But to reason with universality of the broad term is never legitimate, either in negatives or affirmatives. For instance, if you said, *A man argues, therefore every man argues*, or *Some man does not argue, therefore no man argues*, it is false.

#### Transference

Transference, which some are wont to call "remotion," is "the diversion of a term from the proper to an improper signification," as in *Man is painted, Peter is a lion, scil.* in cruelty. Whence transference pertains to improper supposition, and the term that transfers the subject is put as the predicate, since subjects are such as their predicates allow. However, when the term is put as an adjective pertaining to the subject, it restricts the subject as its modifier, but there is no transference. For instance, if you said, *A painted man is a likeness*, *painted* does not transfer; it restricts the analogue itself and draws it to the less principal analogue.

<sup>1</sup> Lyons adds: "because without universality it does not take in all the individuals and so does not infer something determinately."

To grammarians, appellation is the same as naming, and to entitle is to name. To dialecticians appellation means the special application where the thing signified by one term is applied to the thing signified by another. And thus appellation is defined as "the application of the thing formally signified by one term to the thing formally signified by another." For example, if you said, *Peter is a great logician*, *great* does not fit Peter taken absolutely, but under the aspect and formality of Logic. Thus appellation brings about this effect, that the naming term does not apply absolutely to the subject, but under the aspect of what the term names and, as it were, bound up with that formality by means of which the term is applied to the subject—as in the proposition given above *great* does not apply to Peter absolutely but by reason of Logic. And therefore a change of appellation produces a serious defect in paralogisms, sometimes hidden very deep. Also, the definition has "the application of the thing formally signified," because formal application to the thing only materially signified is simple application, or predication, and not appellative predication. This latter applies something to the subject by means of some formality and not absolutely. Thus, if you said, *Peter is a guitar player and good*, both predicates are applied to the subject simply and absolutely; nor is one appellative to the other, *i.e.* under some aspect of the other.

#### Kinds of Appellation

It is divided into real appellation and appellation of reason. *Real* is that which takes place through real accidents or formalities; as in *Peter is a great logician*. Appellation *of reason* is that which takes place through an accident of reason. An example is *Man is a species*; for the predicate does not fit man taken absolutely, but only man as conceived abstractly. And wherever some predicate does not fit its subject absolutely, but under some aspect, there is appellation.

#### Four Rules of Appellation

There are four rules of appellation: the first two for real appellation and the other two for appellation of reason.

1. For real appellation the first rule is: When an adjective is put in the predicate position and a substantive in the subject, there is no appellation to what the substantive formally signifies; the application is to its supposit. And therefore the predicate is not appellative with respect to the subject; it simply applies its signified object to the subject's supposit taken materially. This the older logicians used to express in these

words: the subject stands materially, the predicate formally. Concerning this point see Saint Thomas? Examples of the above: *The doctor is large*, *The white thing is sweet*, *This man (indicating Christ) is eternal*. In these examples the predicate is applied to the subject's supposit taken materially. We make an exception for the proposition where the subject supposes with simple supposition, as in *Man is a species*; for here *man* prescind from supposit and supposes as separated from them. And by the word *supposit* we mean the supposit introduced by the noun, not the support proper to the thing and not brought in by the noun. Whence this is false, *The divine essence generates*, because the act of generating is applied to the essence, which is the supposit of this noun, not to the person, who in reality is the supposit of the essence?

And notice that sometimes a term implies for a double supposit, which in reality is one but different in formal aspect. And a change of this supposit is like a change of appellation. This is the fallacy of accident, which frequently happens in paralogism. For example, if you said, *Whiteness is a similitude, and similitude is rigorous; therefore whiteness is rigorous*, the supposit is altered because whiteness is really one with the similitude, but not formally. And thus the supposit is altered formally. Likewise, with reference to God this is not valid: *The Father is God, the Son is God; therefore the Son is the Father*, because the term *Cod*, although in reality the same thing, is virtually manifold and can be identified with and modified in three Persons, while they remain distinct and any One inadequately modifies the essence. Concerning this see below?

Finally, when *inasmuch as* is put with the subject, there is appellation from the predicate to the reduplicated term, because it is the same as if it were put with the predicate. Examples: *Christ inasmuch as man is a creature*; *Peter inasmuch as white pierces vision*,<sup>‡</sup> etc. These predicates do not fit their subjects absolutely, but by reason of the reduplicated term.

2. When a substantive and an adjective are put as one extreme, the appellation of the adjective is upon the thing formally signified by the substantive, as in *Peter is a great logician*, *The great logician argues*, etc. Read the rule: provided the adjective is not disparate to the substantive, but can determine it. For in this example, *Peter is a black logician*, there is no appellation, because the terms are disparate. The same is under-

<sup>1</sup> Smwj. *Theol.* II. q. 16. aa. 7. 9.

- This example, taken from Sacred Theology, is based on the revealed dogma that God is one nature and three Persons. The *act of generating* is a personal predicate, not a nature predicate. Therefore it is falsely applied to the nature (i.e. to the supposit indicated by "divine essence" in the example) and should be applied only to a Person, who is the supposit for personal predicates.-Tr.

\* Pook III, chap. 10, below p. 123.

<sup>4</sup> See footnote to Book II. chap. 3, p. 48 for this meaning of "whitc."-Tr.

stood for substantive terms which, though absolute, yet have the power to connote, as *man* said of Christ. For this proposition, *Christ is an eternal man*, is to be denied because of the appellation of eternity upon human nature. Also, the appellation between a determinable thing and the determination is the same as between a substantive and an adjective. For instance, if you said, *The horse of the king runs*, this means that the horse runs while belonging to the king. But there is no appellation if you said, *The kings horse runs*, because it is verified of a horse that does or did belong to the king. And therefore when the genitive, or determination, comes first, it has a plural acceptance; when it follows the nominative, it has a single acceptance, as we said above. The same holds for the following: *The Pope I saw* and *I saw the Pope*. For the second one means that I saw him when he was Pope; but the first does not require this; it is sufficient to have seen a man who is or was Pope? Finally, in order for the formal object of an adjective to have appellation upon a substantive, it is required that the adjective truly fit the very supposit of the substantive and under its formal aspect too. For example, when I say, *Peter is a good father*, it is necessary that goodness fit the very supposit of father precisely under the aspect of fatherhood. And when I say, *Christ dies*, death fits the supposit by reason of the humanity, that is, as taking the place of the human supposit.

3. A predicate of second intention applicable to the thing signified by a noun has appellation upon the primary significate, because it makes the noun suppose with simple supposition. And thus the predicate does not fit the supposit absolutely, but as being abstractly conceived; for instance, if you said, *Man is a species*, *Animal is a genus*. However, a predicate of second intention that fits the very noun, or term, not the thing signified, does not have appellation. For instance, if you said, "*Man*" is a noun, "*Man is an animal*" is a proposition, and the like. For then they make material supposition.

4. A term that signifies an internal act of the soul has appellation upon the object, or term, and is directed towards it under the proper formality of such an act. For example, *I know man*, i.e. under the concept of man; *I know the Pope*, i.e. inasmuch as he is Pope; *I desire to be pleased*, i.e. under the aspect of pleasure, not under that of evil. For these acts are never directed to their objects taken absolutely, but under that formality and precision by which the objects pertain to such an act. This is especially the case when the term signifying the object is placed

® The reader might think that the point explained here is grounded in a Latin idiom. The text has : "*Papam vidi, vidi Papam* " This is not a question of idiom, but of logic. The author gives his reason, viz. there is appellation if you put the object after the verb; there is no appellation, but rather ampliation, if you place the object before the verb. Read the author's explanation of the fourth rule (in this chapter), especially the last example.-Tr.

after the term signifying the act of the soul, and not before. For if you said, *The one approaching I know*, there is no appellation; rather, *I know* amplifies its object, whether he be known only as coming or known also in himself. And thus this is not a valid consequence: *I know the one approaching, The one approaching is Peter, Therefore I know Peter*. For I can know him under the concept of one approaching, and not under that of Peter. And in this rule are grounded all the precisions, priorities, and diverse signs of the intellect, where reasoning from one to the other is not valid.

All the rules for the consequence of appellations are reduced to this one: when the appellation is changed, consequence is not valid either in real appellation or in appellation of reason. We shall speak of this below,<sup>6</sup> treating the defects of appellation.

## Ch a p. 16

## Opposition

After explaining the properties of propositions from the viewpoint of the terms and parts which make them up, we have yet to see those properties which belong to the whole proposition and not to the parts, and which therefore properly fit one proposition in comparison with another. There are three of these properties, *scil. opposition, equipollence and conversion*. Now these three properties do not apply to a definite proposition except in relation to another; since opposition of one proposition is activated with another proposition; and equipollence is the equivalence of two propositions; and conversion is the change of one into another. Therefore, these properties must be operative among propositions that are not disparate, but consist of the same terms. For example, these propositions are not opposed: *Peter runs, Paul does not argue*. Nor is one converted into or equivalent to the other.

### Definition of Opposition

Thus we can define opposition in general as “the affirmation and negation of the same thing concerning the same thing.” This definition does not cover subalternation, which is not properly opposition, except relatively, *viz.* between the universal and the particular. The other oppositions are activated through affirmation and negation.

Thus, for opposition among propositions three conditions are required. *First*, regarding the terms: that the propositions consist of the same parts, or terms, in such a way that nothing that could change the subject or predicate of the proposition is put in one proposition and not in the other. *Second*, that the same acceptance of the terms be pre-

« Book III, chap. 13, below pp. 132, 133.

served, *i.e.* the same genus of supposition, the same ampliation, the same restriction, the same appellation. And we say the genus of supposition, *viz.* that if the term *lias* in one proposition a simple or a personal supposition, it have the same also in the other; but not the same species of personal supposition. For in some oppositions there is a change of personal supposition, namely the universal to the particular, as will be said in the next chapter. However, the ampliation, the appellation, and the restriction ought to be preserved, because these pertain in a way to the identity of the matter and of the extremes. *Third*, regarding the copula: that there be opposition in quality, *viz.* affirmative quality in one and negative in the other.

#### Kinds of Opposition

The above opposition is divided into three species: contradictor)', contrary and subcontrary. *Contradictory* opposition, defined according to its formal aspect, is opposition which is repugnant in truth and in falsity, so that two contradictories can never be true or false at the same time; but if one is true, the other is false. From the viewpoint of their quasi-material character, contradictory propositions are a universal and a particular proposition, where one is affirmed and the other negated; or two propositions with a singular subject, one affirmed and the other negated. An example of the first kind: *Every man is white, Some man is not white*. An example of the second: *Peter runs, Peter does not run*.

*Contrary* opposition, defined according to its formal aspect, is opposition repugnant in truth but not in falsity; so that two contraries can never be true at the same time, though quite possibly false at the same time. From the viewpoint of their material character, contrary propositions are a universal affirmative and a universal negative of the same thing concerning the same thing, *e.g.* *No man is white, Every man is white*. Both at the same time are false; but contraries can never be true at the same time. However, we do not mean that they are always false at the same time; rather, they can be false, *viz.* when dealing with contingent matter.

*Subcontrary* opposition, from the viewpoint of its formal aspect, is opposition repugnant in falsity but not in truth; so that they can at the same time be true, but never false at the same time. From the viewpoint of their material character, subcontrary propositions are a particular affirmative and a particular negative of the same thing concerning the same thing, *e.g.* *Some man runs, Some man does not run*.

And notice that where there is opposition based on the quantity of the subject of the proposition and the propositions have the repugnance formally required for their kind of opposition, such propositions are said to be opposed *according to law and according to mode*. But when they

have the repugnance required for their kind of opposition and not the quantity, they are said to be opposed *according to late*, but not *according to mode*. Thus formal repugnance is called opposition *according to late*; opposition from the viewpoint of the quantity of the subject is called *according to the mode of expression*. For example, the following contraries are according to mode and law: *Every man argues, No man argues*. The following are contraries according to law but not according to mode: *Some man argues* (restricting *some* to males alone), *Every man does not argue* (not restricting *every* to males alone). For then each proposition is false and cannot be true in the event that a female would argue and no male would.

## Ch a p. 17 *The Conditions Required for the Specific Kinds of Opposed Propositions and the Rules for Recognizing These Species of Opposition*

In the matter before us two things are certain. *First*, any proposition whatsoever is turned into its contradictory by putting a negative at the head of the whole proposition, because this negation denies the whole of what the other affirmed. *Second*, if the propositions have a singular term as subject, nothing else is required for them to be contradictories except that one deny what the other affirmed, provided the supposition, restriction, ampliation and appellation remain unchanged, as in *Peter talks, Peter does not talk*.

### Conditions for Contradictory Opposition

But if the propositions consist of common terms, three conditions are required for contradictory opposition. *First*, that the term be neither universally distributed in both propositions, nor have particular supposition in both propositions, but universal in one and particular in the other. *Second*, that the term which is universal in one proposition be changed to a particular in the other and conversely, the particular be changed to a universal. *Third*, that a term with universal supposition in relation to one with confused supposition be changed to particular determinate supposition; and a term with universal supposition in relation to one with determinate supposition be changed to particular confused supposition.<sup>1</sup> Here are examples: *Every man is white, Some man is not white*. Here *man* supposes universally in the first proposition and in the second particularly and determinately. And *white* in the second proposition supposes

<sup>1</sup> The terminology of this sentence can easily be correlated with that of the divisions of supposition (Chapter 11). Thus "universal supposition" is distributed; "confused supposition" is alternate; "particular determinate" is determinate; "particular confused" is alternated.-Tr.



universally in relation to *man* determinately, and in the first it has confused supposition.

#### Conditions for Contrary Opposition

In contrary opposition, which deals only with common terms, if the contrariety is *according to mode*, it is required that the universality in both propositions remain the same; and if any term is taken as particular, it should be changed to a universal. For example, *Every man is white, No man is white*. However, in contrary propositions that are not contrary according to mode, but are *according to law*, nothing is required except that there be a defect of truth in them, that is, that they can not be true at the same time, though they can at the same time be false. See below, at the end of this chapter, the example of contraries according to law only; also above, at end of the preceding chapter.

#### Conditions for Subcontrary Opposition

Subcontrary opposition, which also is operative between common terms, has requirements inverse to those of contraries. *First*, that if there is any universality in one subcontrary proposition, in the other this must be changed to a particular, when the subcontrariety is *according to mode*. But where the subcontrary opposition is *according to law only*, nothing is required except there be a defect in falsity, that is, that they cannot be false at the same time, though they can at the same time be true, independently of the universality or particularity of the propositions.

And notice that universality and particularity can be found in propositions in two ways: 1) because of the sign, which is the mode of particularity or universality, as *every, no one, some*, etc.; 2) because of the mode affecting the modal proposition, as *impossibly, necessarily, possibly*. Likewise, *and* taken copulatively, *either* taken disjunctively, when they pertain to a term; for the first is universality, the second is particularity. Therefore when we say that universality ought to be changed into particularity and conversely, we mean the universality both of signs and of modes, except when the universality makes up part of an extreme and does not do the work of distributing or of particularizing. For in such cases it ought not to be changed; for instance, if you said, *That which is every man is an animal, every* is part of the extreme and ought not to be changed.

But there are some signs that partly convey universality and partly particularity, and are called *incomplete universal* and *incomplete particular* signs; as *every* used of the genera of singulars, not of singulars of that genus. For example, if you said, *Every animal was in Noah's Ark*, it is verified of every species of animal, not of every individual. In like manner, *each of two* produces incomplete universality; also *contingently*,

because it is resolved by means of a copulative *and* and *possibly*, which is a mode of particularity. For if you said, *Man runs contingently*, it is resolved: *Man possibly runs and possibly does not run*. Whence if these incomplete modes are affirmed in both opposed propositions or denied in both, even in a case where the copula itself is negated in one and affirmed in the other proposition, they come under no law of opposition. For example, if you said, *Every man contingently runs*, *Some man contingently does not run*, where *contingently* is affirmed in both cases, these are not contradictories, nor do they come under the laws of opposition. In fact, they are equivalents from the viewpoint of mode because in both cases *contingently* includes universality and particularity. But if two exponible propositions virtually include contrary' exponents, they have contrary' opposition. For instance, *Only man is an animal* and *Only man is not an animal* are contraries because among their exponents are *Every animal is a man* and *Every animal is not a man*.

#### Two Rules for Determining Contrary and Subcontrary Propositions

In order to recognize contrary and sub-contrary' propositions, both according to mode and law, there are two rules. 1. When two propositions are of opposite quality regarding the same extremes, they are contraries if the affirmative proposition infers the contradictory of the negative, and is not inferred from it. 2. When two propositions are of opposite quality regarding the same extremes, they are subcontrary if the affirmative is inferred from the contradictory of the negative, and not the other way' around. Therefore, close attention must be given to the contradictory' of the negative (which is always affirmative) as if it were the principle and regulator; and we must see whether it is inferred from one affirmative or it infers the affirmative, in order to decide from this whether the proposition is a contrary or subcontrary.

The reason for the first rule is the following: given the contradictory of the negative proposition, if it is inferred from the affirmative, the affirmative is not true unless the contradictory of the negative is also true, since it is inferred from the affirmative and in a good consequence if the antecedent is true, so is the consequent. If, however, the contradictory of the negative is true, the negative itself cannot be true but is false, being its contradictory. Consequently' these two propositions, *viz.*, the affirmative and the negative, are opposed in truth. On the other hand they are not opposed in falsity, but can at the same time be false, since the affirmative does not follow from the contradictory' of the negative. Thus the contradictory of the negative is true and the affirmative is false, because where there is not a good consequence the antecedent can be true and the consequent false. But in the same case the negative also is false, since its contradictory is true. Thus both negative and affirmative are false. An example of this can be practiced in the fol-

lowing propositions: *Every man runs, No man runs*. Now the contradictory of the negative is *Some man runs*. And it is inferred from the affirmative, but does not infer it.

The reason for the second rule is just the inverse, because two propositions, one negative and the other positive regarding the same extreme, cannot be false at the same time, if the contradictory of the negative infers the affirmative proposition. For if the contradictory of the negative is true and it infers the affirmative, the affirmative is already true. But if it is said that the affirmative is false, yet is inferred from the contradictory of the negative, a contradictory of this kind will be false, because in a good consequence, if what is inferred is false, so is the antecedent. Then the negative proposition will be true, since its contradictory is false. And therefore they can never be false. On the other hand, they can be true at the same time, because the contradictory of the negative is not inferred from the affirmative proposition. Therefore, the affirmative can be true while the contradictory of the negative is false, according to the rule of bad consequence, in which the antecedent can be true and the consequent false. But when the contradictory of the negative is false the negative, its contradictory, is true. Therefore, they can be true at the same time. An example can be given in these propositions: *Man is white, Some man is not white*; with the negative's contradictory which is *Every man is white*.

It follows from the above that if the contradictory of a negative neither infers the affirmative nor is inferred from it, they come under no law, as these: *Man is every white thing, Man is not white*. And these are contraries: *Peter runs, No man runs*; because that affirmative infers this proposition, *Therefore some man runs*; which is the contradictory of *No man runs*. Yet it is not inferred from the affirmative; and both are false in the case where Peter is dead and John runs. But they are contraries according to law and not according to the mode of expression.

## Ch a p. 18

## *Equipollence of Propositions*

Equipollence is nothing other than “the equivalence—having the same meaning—of opposed propositions owing to the change of a negative particle.”

### Three Rules for Equipollence

There are three rules for equipollence.

1. Two contradictory propositions are made equipollent if a negative particle is put in front of one of them. Take this to mean: provided the negative has the force of negating and not that of making indefinite. For example, if you said, *Every man argues, Some man does not argue*. If you put a negative before one of them and said, *Not every man argues,*

this is the same as saying, *Some man does not argue*. And if you said, *Not some man does not argue*, this is the same as saying, *Every man argues*. From this you learn also how, in the case of any proposition, contradiction takes place through merely putting a negative before it, since negation, because of its destructive nature, does away with everything it finds after itself. Whence, just as negation placed before the contradictory makes it equipollent, so placed before the proposition itself negation produces the proposition's own contradictory.

2. Two contran' propositions become equipollent by placing the negative after the subject and before the copula. For example, *Every man runs*, *No man runs*; these become equipollent by saying, *Every man does not run*, or *No man does not run*. Take this rule to mean: where the distribution is complete. Otherwise, there could be an instance like this: *Each of two men argue*, *No man argues*. These are not made equipollent solely by putting the negative after the subject, yet they are contraries according to law; they can be false at the same time in the case where one man argues but not two of them, and there never is a case where they can be true at the same time.

3. This is for subalterns like *Every man argues*, *Some man argues*. They are made equipollent by putting a negative before and after the subject. For example, if you said, *Not every man does not argue*, the equipollent of this is *Some man argues*. And, of *Not some man does not argue*, the equipollent is *Every man argues*. Whence this verse:

*Prae Contradic, Post Contra, Prae postque Subalter.*<sup>1</sup>

There are no equipollent propositions for subcontraries because they do not have the capacity. For if you put the negative before the proposition, it becomes a universal, and consequently not the equipollent of the particular proposition. For instance, *Some man is white*, *Some man is not white*. If you said, *Not some man is white*, this is the same as *No man*. If you put the negative after the subject in the affirmative proposition, it does not become equipollent but formally negative. For example, *Some man is white*; if you put the negative after the subject, it becomes the negation, *Some man is not white*, but not the equipollent of the negative proposition. And if you put the negative after the negative itself, it becomes the useless repetition, *Some man is not not white*.

## Chap. 19

## *Conversion of Propositions*

Conversion is "the change of the extremes of a proposition from the subject into the predicate and the predicate into the subject, while the

<sup>1</sup> This Latin memory verse, and those in later chapters, are dactylic hexameters, the meter of Latin and Greek epic poetry. In order to get the rhythm of this verse stress the accented syllables:

Prae Contradic, Post Contrá, Prae póstque Subálter.-Tr.

quality and the truth remain the same;" that is, that the copula is affirmative or negative in both propositions, and that each be true.<sup>1</sup> Here you must always pay close attention to what really is the subject and what really is the predicate in the proposition, so that these are interchanged, and not something else. For instance, if you said, *A head has man*, *head* is not the subject, but *man* is, because *man* supplies the supposit for the verb. Thus, the proposition ought to be converted in this way: *Therefore one having a head is man*. And if you said, *For riding on horseback a horse is required*, it is converted into this, *The required for riding horseback is a horse*, because *is required* is the predicate.

### Three Kinds of Conversion

There are three kinds of conversion: simple, or mutual; accidental, or non-mutual; and by contraposition, which is also mutual but between determinate and indeterminate extremes. *Simple* conversion is that in which the predicate is changed into the subject while the quantity of the proposition remains the same. For example, *No man is a stone*, *Therefore no stone is man*; *Some man is white*, *Therefore some white thing is a man*. Conversion is *accidental*, or partial, when the predicate is changed into the subject while the quantity does not remain the same. For instance, *Every man is an animal* cannot be converted to: *Therefore every animal is a man*; but to this: *Therefore some animal is a man*. And notice that propositions converted simply, if universal *a fortiori* can be converted accidentally, since the particular is contained under the universal. Conversion by *contraposition* is the change of the predicate into the subject when the terms are changed according to determinate and indeterminate. For example, if you said, *Every man is an animal*, it follows validly: *Therefore every not-animal is not-man*. Also, *Some man is not white*, *Therefore a not-white thing is not not-man*. This conversion was worked out in order to supply a mutual conversion for propositions which in themselves were not able to be converted mutually. And it is not properly a conversion of terms, because the terms, or extremes, do not remain the same; the conversion is according to meaning, with the terms changed from determinate to indeterminate.

### Rules for Conversions

The rules for conversions are the following. 1. A universal negative proposition is converted simply. 2. A particular affirmative proposition is converted simply. 3. A universal affirmative proposition is converted accidentally. A universal negative proposition can also be converted

<sup>1</sup>Lyons adds: "This means: provided the proposition that is converted has truth, so that if it has truth, this is not to be changed."

accidentally. 4. A universal affirmative and a particular negative are converted by means of contraposition. We shall consider the grounds and proofs of these conversions later?

In order to remember these rules, four letters, *viz.* A, E, I, O, are chosen to signify these four propositions. A signifies the universal affirmative, E the universal negative, I the particular affirmative, and O the particular negative. And the verse that contains all conversions is the following:

*FECI simpliciter convertitur, EVA per acci,  
ASTO per contra, sic fit conversio tota.*<sup>3</sup>

Here *Feci* indicates that a universal negative and a particular affirmative are converted simply. *Eva* means that the universal negative can also be converted accidentally, but a universal affirmative is always converted accidentally. *Asto* means that the universal affirmative and particular negative can be converted by contraposition. Thus for the letters the verse is:

*Asserit A, negat E; sunt universaliter ambae.  
Asserit I, negat O; sunt particulariter ambae.*<sup>4</sup>

## Ch a p. 20

## Modal Propositions

The opposition and equipollence of modal propositions deserves special consideration. And "modal proposition" is taken as the antitheses of the *de inesse* proposition. The *de inesse* proposition is "one which denotes without qualification that the predicate fits the subject and is present in it." The *modal proposition* is "one which denotes that the predicate is in the subject together with the mode by which it is present in and fits the subject."

Now a *mode* is nothing else than an adjoining determination of a thing, as St. Thomas says.<sup>1</sup> Thus there are many modes that can affect a proposition; but not all of them make the modal proposition we are considering here. For there are some modes which modify the subject or the predicate. For instance if you said, *Peter runs swiftly, He works enthusiastically*, the modes *swiftly* and *enthusiastically* only affect the predicate. And if you said, *The just man is wise, or The horse belonging*

<sup>2</sup> Log. I, q. 7, a. 3.

<sup>3</sup>To get the rhythm of this verse stress the accented syllables:

hēcī simpliciter convertitur, Êva per ácci.

Asto per contrá sic fit conversio tóta.-Tr.

<sup>4</sup> Stress the following accented syllables:

Asserit A, Negat Ê; sunt universaliter ámbac.

Asserit I, negat Ô, sunt párticuláriter ámbac.-Tr.

<sup>1</sup>Suw Tot. Log. Arist. tr. 6, c. 11.

to a man runs, just and belonging to a man modify, i.e. restrict, the subject. They do not take the proposition from the class of *de inesse* propositions in such a way that it has different rules of opposition or equipollence.

There are other modes that affect the copula itself and modify the agreement of predicate with subject; and by this modification they add something pertinent to universality or particularity, or to affirmation and negation. And these modes make the modal propositions that we are dealing with at present. The modes are four: *impossible, possible, necessary, contingent*. Some add two others, viz. true and false. But these are not properly modes as we treat them now, because truth and falsity are so a part of every proposition that they do not change the relation and manner of opposition and equipollence, etc., which are in *de inesse* propositions.

On account of this the modal proposition is defined: "A proposition affected by one of these four modes." There are two kinds, because there are two ways a proposition can be affected: one is a divided modal, the other composite. The modal is *composite* where the mode has the position of predicate, and what is said, that of subject; for instance, if you said, *That Peter argues is possible*. The modal is *divided* where the mode given adverbially bears on the copula; as in *Peter possibly argues*.

And notice that this is the origin of *composite sense* and *divided sense* with reference to propositions. Composite sense is taken from the composite modal, and divided sense from the divided modal. And these consist in this: that in the composite sense the simultaneous presence and the union of two forms in one subject is signified; whereas in the divided sense is meant the union, or fitting, of two forms in a subject, not at the same time, but successively, or where one excludes the other; for this is divisive. Whence it is never valid to go from a divided to a composite modal proposition, or from the divided sense to the composite, just as it is not valid to go from fitting successively to fitting simultaneously.

And therefore the composite sense is properly signified by a composite modal proposition, where the mode is predicated of the whole saying. For it signifies that the form of the predicate and of the subject under this mode are joined and come together at the same time. And the divided sense is signified by a divided modal proposition, where the mode only affects the copula. Thus it denotes that this mode fits the subject, and not that it fits the *ven'* form of the predicate and subject at the same time. This is an example, if you said, *That a black thing is white is possible, That a sitting person stands is possible*. In the composite sense this signifies that the joining together of sitting and standing is possible. But if you said, *A person sitting possibly stands, or can stand,*

this signifies in the divided sense that the power to stand fits the subject sitting, and not the power to stand at the same time as the sitting. Therefore when in the subject and predicate forms are introduced that are opposed—because for instance one form does not exclude the subject's potency to receive the other, and excludes only co-existence and being present together with it—then in the divided sense this potency remains as long as the first form is present in the subject; for that form neither takes away the potency nor gives it. And so when I say, *The will moved efficaciously is able not to act in the divided sense*, I do not signify that separate from efficacious motion the will is able not to act; but that while the efficacious motion is present in the subject there remains the potency to its opposite, and not the potency to join the opposite with the form, efficacious motion. Thus the divided sense places in the subject a potency to its opposites successively combined; the composite sense denotes a potency to opposites simultaneously combined.

## Chap. 21

## *Quantity, Quality, Opposition and Equipollence of Modal Propositions*

*Every* opposition and equipollence of propositions results from their quality and quantity. Hence where you find a special difficult' regarding quantity and quality, you also find it regarding opposition and equipollence. And therefore in order to explain the difficult' regarding opposition and equipollence of modal propositions, we must first explain their quantity and quality as modals.

### Quantity of Modals

Consequently, these four modes, impossible, necessary, possible, contingent, in themselves bring in a quantity similar to the signs *every*, *no one*, *some*, etc. For *necessary* and *impossible* say universality', because what fits necessarily, fits every one of them and always; what is impossible, fits none of them and never. *Possible*, however, and *contingent* say particularity, because in order to justify something as possible it is sufficient that it be possible at some time or to some subject. And here contingent is taken to mean the same as possible; it is not the same as defectible, for in this sense it is opposed to the necessary. Rather it is taken for what can be sometimes, prescinding from defectibility.

From the above it is clear—since the modal proposition consists of a dictum and a mode, and the mode itself has quantity, while the dictum also can have quantity—that sometimes in the same proposition two quantities come together, one from the dictum and the other from the mode, which must be changed in order to get opposition and equipollence. And this double quantity is more clearly discerned in divided



modals, where the quantity of the dictum works in the same way as in a *de inesse* proposition. For instance, if you said, *Every man possibly runs*, *every* distributes without qualification. Whereas in composite modals, the whole dictum becomes one extreme in a way, and the mode is predicated of it. Thus the quantity of the dictum seems to operate less, and that of the mode stands out more. Nevertheless even the quantity of the dictum must be changed in opposition because of the meaning of the proposition. For the composite modal is reduced to the divided, and consequently the truth of one ought to be regulated like the truth of the other. Now in order to by-pass this problem and to see the opposition and equipollence proper to modals in so far as they are modals, it is customary to give examples from propositions where the dictum is concerned with a singular term; as in *That Peter runs is possible*, where only the quantity of the mode is considered. However, should the dictum be concerned with a common term, we shall give examples below in the schemata for divided modals.

#### Quality of Modals

Something like this holds for quality. Since there is in the composite modal a double copula, *scil.* one belonging to the dictum and one to the mode, it is possible that both are affirmed or both are denied; or that the dictum is affirmed and the mode denied or the mode is affirmed and the dictum denied. And in order to facilitate memorizing and using this, logicians have set up the four vowels, A, E, I, U, for these four combinations of affirmation and negation. A signifies a proposition affirmative in mode and dictum; E signifies a proposition negative in dictum and affirmative in mode; I, a proposition negative in mode and affirmative in dictum; U, one negative in dictum and mode. Whence the verse:

*E dictum negat, Ique modum, nihil A, sed U totum.*<sup>1</sup>

Therefore, in order that opposition arise between these modals, always be aware that just as the quantity in *de inesse* propositions receives attention, so in modals the quantity of the modes should receive attention. And we presuppose that *necessary* and *impossible* are universals just as *every* and *none* are; and that *possible* and *contingent* are particular just as *a certain one* and *some*, etc. Hence, as *every* and *no one*, so *necessary* and *impossible* make contraries; and just as *some* and *some not* make subcontraries, so *possible* and *possibly not* make subcontraries; and as *no one* and *some*, *every one* and *some not*, make contradictories, so *impossible* and *possible*, *necessary* and *possibly not* make contradic-

<sup>1</sup> For the rhytm of this verse stress the accented syllables:  
É dictum negat, íque modúm, nihil A, sed U tótum.-Tr.

tories. And just as equipollence arises through placing the negation before or after, etc., so also equipollence arises in modals through the same placing of the negation before or after.

Then too we have to pay attention to the change of negation and affirmation so that in oppositions we always have affirmation and negation of the dictum. On the other hand, negation or affirmation of the mode is required only to the extent that it is necessary for changing or preserving unchanged the quantity of the mode. For sometimes the quantity of the mode is changed by denying the mode itself, as with *every* the quantity is changed by saying, *not every*. An example of the above can be taken from this proposition: *For Peter to run is impossible*. If you wish its contrary, say, *For Peter to run is necessary*. If its contradictor}', say, *For Peter to run is possible*, because *impossible* negates the dictum. If you wish to make subcontraries, say, *For Peter to run is possible*, *For Peter not to run is possible*. If you wish to make equipollent propositions, say *For Peter to run is impossible*, *It is not possible for Peter to run*, or *It is necessary for Peter not to run*, depending on whether you wish to make equipollent propositions from contraries, as *necessary* and *impossible*, by putting the negation after the subject, or from contradictories by putting the negative before, etc.

So that all of this might better stick in the memory, logicians, using the four vowels A, E, I, U, made up four words, or composite schemata. These clearly show forth equipollence and opposition in all possible combinations, whether you affirm or deny either the mode or the dictum or both. They are: *Amabimus*, *edentuli*, *illiacae*, *purpurea*. Start with the letter A in *amabimus*, with E in *edentuli*, etc. And you ought to proceed in such a way that in any word you put the mode *possible* for the first letter, *contingent* for the second, *impossible* for the third, and *necessary* for the fourth. And examples of composite modals should be given with dicta having a singular term, and for divided modals with a common term. For in this way you can easily grasp both and pass from one to the other.

# Schemata for Composite Modals

P It is not possible for U Peter not to run. R	E Q U I		E I It is not possible for Q L Peter to run.
		CON- TRARIES	
P It is not contingent for U Peter not to run.	P O L		P I It is not contingent O I for Peter to run.
R It is impossible for E Peter not to run.	L E C		L A It is impossible for S E C Peter to run.
A It is necessary for Peter to run.	T N S T		T S
		R A T D C D C A T K V	
A It is possible for Peter to run.	E Q U I		E E It is possible for 8 Peter not to run.
M It is contingent A for Peter to run.	O I C		S I D It is contingent for p E Peter not to run.
B It is not impossible I for Peter to run.	P O L		O N
	L	SUB- CON- TRARIES	L T It is not impossible E U for Peter not to run.
M It is not necessary for U Peter not to run. S	N T S		T L It is not necessary S I for Peter to run.

We begin the schema with *purpurea* and not with *amabimus*, so that the contrary opposition be in the higher place, the subcontraries in the lower, and the contradictories along the transverse. For there is contrariety between *purpurea* and *illiacae*; subcontrariety between *amabimus* and *edentuli*; contradiction between *purpurea* and *edentuli*, and between *amabimus* and *illiacae*; and the four in any one schema are equipollent among themselves.

## Schemata for Divided Modals With the Dictum Having A Common Term.

Unqualified universals in  
dictum and mode:

*Every man necessarily argues.*

*Every man impossibly argues.*

Unqualified particulars in  
dictum and mode:

*Some man possibly argues.*

*Some man possibly does not argue.*

The first two in the top position are contraries without qualification

and the two in the lower position are without qualification subalterns to the first two; among themselves they are subcontraries without qualification; along the transverse-' they are contradictories without qualification. And they become equipollent by putting the negative before and after, according to the rules for equipollence given above.

Universals in dictum  
and not in mode:

*Every man possibly argues.*  
*Every man possibly does not argue.*

Particulars in dictum and  
in mode:

*Some man possibly argues.*  
*Some man possibly does not argue.*

These are subalterns only according to the subject, not according to the mode. And therefore we put these here on account of the subalternation. But the particulars in dictum and universals in mode, which seem to belong here, are better located in the following schema. Now the first two are not contraries among themselves; for even though they require contrariety from the viewpoint of the subject, still contrariety is blocked by the particular mode *possibly*, because the universality and particularity remain the same. And the two lower propositions are without qualification subcontraries. However, along the transverse they are not contradictories, because the same particularity remains owing to *possibly*, but are subcontraries according to mode. Yet the first two do have a contradiction with modals that are particular in dictum and common in mode. We shall give these immediately.

Universals in mode and  
«particulars in dictum:

*Some man necessarily argues.*  
*Some man impossibly argues.*

Particulars in mode and not  
in dictum.

*Every man possibly argues.*  
*Every man possibly does not argue.*

The two top propositions are disparate to each other, and the two lower ones also, because the particularity and universality remain the

<sup>2</sup> The author supposes that the two sets of propositions can be placed opposite each other, thus giving a transverse line. But the first part of his description requires that they be placed, as they are in the Latin text, one set above the other. The same holds for the following schema in this chapter.-Tr.

same in them. But considered transversely they are contradictories without qualification. Now in order to make contraries according to the subject only or the mode only, see that you always put a universal dictum and mode in one of the propositions; otherwise if in each of them one is universal and the other particular, the propositions will be disparate. For example, these are contraries according to mode: *Every man necessarily argues, Some man impossibly argues*. And these are contrary according to dictum: *Every man possibly argues, Every man impossibly argues*. Likewise in subcontraries according to subject only or mode only, see that one proposition be particular in dictum and mode.

## Ch a p. 22

## *The Reduction of Modals to Their De Inesse Propositions*

The reduction of modals to their *de inesse* propositions is nothing else than testing, or regulating, the truth of the modal by the truth of the *de inesse* proposition. For if it is true that Peter possibly argues, then it is true because this *de inesse* proposition, *Peter argues*, has possibility. And notice that every modal, if it is true, is a necessary proposition and has eternal truth because it applies the mode due the proposition's truth arising from an intrinsic connection. For example, if you said, *For Peter to run is contingent*, this is a necessary proposition itself, since contingency necessarily fits Peter's running. And from this you see how the First Cause is able to cause freedom and contingency in us while acting infallibly, because the First Cause not only causes the things themselves, but their modes also, and gives to each its own mode. And thus it does not follow from divine causality, for example, that Peter's walking is necessary; rather it is infallible and necessary that Peter's walking becomes so freely and contingently; for freedom and contingency fit this walking intrinsically and necessarily. And since the dictum in a composite modal has a kind of immobile supposition and makes one extreme relative to the mode; consequently in order to resolve a composite modal by descending from the dictum, we must reduce it to its divided modal of which it is the equipollent. For example, *It is necessary for man to run, A man necessarily runs*; and then you may descend from *man*.

Now, as an aid to understand how modals must be reduced to their *de inesse* propositions, notice that *de inesse* is used of propositions in two ways. First, one that lacks any mode affecting it and as opposite to the modal proposition. Second, one that deals with the present and is opposed to a proposition of the past or future; which usage is based on extrinsic time.

Thus the modal is reduced to its *de inesse* by constructing a *de*

*in esse* proposition and showing that the mode used in the modal proposition fits it. For example, if you said, *Peter runs contingently*, it is reduced to its *de in esse* in this way: *This proposition "Peter runs" is contingent*. And this proposition is called *validating* for that modal. And the modal is said to be proved, or reduced, by means of the validating *de in esse* proposition; that is, by showing the modal in one proposition which proves or signifies that this mode of possibility or contingency fits its *de in esse*.

#### RULE FOR REDUCING MODALS AND PROPOSITIONS OF EXTRINSIC TIME

With this understood, the several rules, which are given for reducing and regulating modal propositions or propositions of extrinsic time with reference to their *de in esse* propositions, are brought down to this one rule: for the truth of a modal proposition or one of extrinsic time that is immediately reducible to its *de in esse*, it is sufficient and necessary that the mode in question or the difference in time fit and be true of its *de in esse*. For instance, for the truth of the proposition, *Peter possibly argues*, it is sufficient that this proposition, *Peter argues*, be possible. And for the truth of this one, *Peter is necessarily a man*, it is required that this proposition, *Peter is a man*, be necessary. For the truth of the proposition, *Adam was*, it suffices that at some time this was true, *Adam is*—which is its *de in esse*. And so of all the others. However, we said “of propositions immediately reducible,” because some times a prior resolution or explication of a term is required before it may be reduced to its *de in esse*. For example, if you said, *A white thing was black*, it is not immediately verified by this that at some time this was true, *A white thing is black*. But it is verified by resolving the amplified subject in this way: *This is or was white*, and *this (viz. what is white) was at one time black*. In like manner, where there is a double copula, e.g. *Peter was and will be white*, first each copula is resolved into its copulative proposition and then each categorical is reduced, or regulated through its own *de in esse*.

#### Ch a p. 23

#### *Hypothetical Propositions*

##### Definition of Hypothetical Proposition

This is the last consideration that remains concerning the second operation of the intellect, namely to consider the second species of enunciation, the hypothetical. For up to the present we have dealt with the categorical proposition and its properties. Now the hypothetical comes closer to the third operation of the intellect, because it joins several categoricals. Whence the hypothetical proposition is defined as “one that has two categoricals joined together as its principal parts,” as in

*If man flies, he has wings.* Whence it is that the hypothetical copula is not a verb, but some adverb or a sign joining the propositions together, for example *and*, *if*, etc. And so in the hypothetical coupling one conjoined part is not predicated of the other, as it is in the categorical; for only the verb is the mark of what is predicated.

#### Kinds of Hypotheticals

The hypothetical proposition is divided into three kinds that are formally hypothetical, according to the three diverse copulas—*if*, *and*, *or*,—that join propositions together. And there are also three kinds that virtually are hypothetical, which go by their proper name, *exponibles*. Though categoricals in themselves, still they contain some term that must be resolved and broken down by means of several categoricals and this makes them hypotheticals. They are therefore said to be virtually hypothetical. We shall treat of these in the following chapter.

New the kinds of hypothetical propositions are conditional, copulative, disjunctive. A *conditional* is one that joins propositions together by means of the particle *if*; for example. *If man runs, man is in motion.* And the rational proposition that joins propositions by means of the particle *therefore* is reduced to the conditional. For every conditional proposition virtually includes a consequence; though properly *therefore* makes consequence and reasoning, not a hypothetical proposition.

A *copulative* proposition is one that joins two propositions by means of the particle *and*; for instance, *Peter is white and Paul is black.* And the particle *and*, when it joins terms, makes propositions with a coupled extreme and has the force of universality, provided it is taken divisively and not collectively. It also confuses the terms placed after it; for instance, *Peter and Paul run, At Paris and Rome pepper is sold.* *Pepper* has confused supposition, and you may not immediately descend below it.

A *disjunctive* proposition is one that joins propositions by the particle *or*; for instance, *Peter runs or Paul speaks.* And when this particle joins terms, it makes a proposition with a disjoined extreme and has the force of particularity. For example, *Peter or Paul speaks, A man or horse is white.*

In these kinds of hypothetical propositions only two points come up for consideration. First, what is required for the truth of any hypothetical? Second, what are the *loci*, or rules, for arguing from such hypotheticals?

#### Requirements for Truth of Hypotheticals

Regarding the first question, this is the rule for *conditional* propositions: The truth of a conditional does not demand that some part be true; a valid consequence is sufficient; and for falsity an invalid consequence

is sufficient. Here we are taking conditional in its strict sense, for an inferential condition. For should the particle *if* be taken only to mean concomitance of one thing with another for example, *If Peter speaks, Patil walks*, this is not properly the conditional that we are speaking of here. Since therefore good consequence alone is required for the inferential conditional to be true, it follows that every true conditional is necessary and every false conditional is impossible, because a good consequence is always and necessarily good; otherwise, if it can fail, it is bad. For the validity of consequence is based on the connection between the extremes. And this is what St. Thomas teaches.<sup>1</sup> Whence you see that the knowledge of things as conditional, if taken in the meaning of inferential conditional, pertains to necessary knowledge, because such a conditional is either necessary or impossible. However, if it is not taken with the force of inferential conditional but as concomitance or the ordering of one to another, then such knowledge of conditioned things is the knowledge of co-existence and of proportion of one thing to another, or of the positing of one with the positing of another. And this ought to be reduced to some cause that joins or makes one proportional to the other and factually founds the truth the proposition factually has, though the extremes may not exist in fact.

This is the rule for *copulative* propositions: Truth in the copulative demands that each of the parts be true; it suffices for falsity that either part be false. For instance, *Man is rational and the horse is able to neigh*, is true because each part is true, for its truth consists in the coupling of truths. But if you said, *Peter argues and a stone runs*, the whole proposition is false, because part of it is false. And what we say of truth must be said of possibility and necessity. In order that the copulative be possible or necessary, it is required that each part be possible and necessary. But to be impossible or contingent, it suffices that one part be impossible or contingent. However, between the impossible and the contingent, if one part is contingent and the other is impossible, the whole proposition is impossible. For example, if you said, *Peter is a stone and Paul runs*. Thus in case of a deficiency the proposition follows the weaker part; for a good effect it demands the integral cause.

For *disjunctive* propositions this is the rule: For the truth of the disjunctive it suffices that one part be true; for its truth consists in the separation of truth and its falsity in the opposite. And the same holds for necessity and possibility: it is sufficient that one part be necessary or possible. For example, *Man is an animal or the sun is black*, is true and necessary because of the first part only. On the other hand, falsity in a disjunctive requires that each of the parts be false, and so does impos-

<sup>8</sup> Sum. Tot. Lot). Arist. tr. 6, c. 14.



sibility: for instance, if you said, *Man is able to neigh or the horse is risible*.

In sum, the copulative always follows its weaker part, the disjunctive its stronger part. The true, the necessary, the possible are called the stronger parts; the false, the contingent, the impossible are called the weaker parts. For if you posit one strong part, the whole disjunctive becomes true or necessary or possible; while if you posit one weak part, the entire copulative becomes false or impossible. Finally, for contingency in the disjunctive it suffices that one part be contingent, provided none is necessary nor all opposed in falsity. For instance, if you said, *Peter argues or man is a stone*.

#### RULES FOR ARGUING FROM HYPOTHETICALS

Now for the second question. These are the rules for arguing from *conditional* propositions. 1. From the full conditional plus the denial of the consequent there is good consequence to denying the antecedent. For instance, if you said, *If the sun shines, there is daylight. Therefore if there is no daylight, the sun does not shine*. 2. From the full conditional plus positing the antecedent there is good consequence to positing the consequent. For example, *If the sun shines, there is daylight. The sun shines. Therefore there is daylight*. 3. It is valid to go from the conditional to a disjunctive made up of the consequent and the contradictory of the antecedent. For example, *If the sun shines, there is daylight. Therefore either there is daylight or the sun does not shine*.

In *copulatives* the rule is: There is formal consequence from the affirmative copulative to any part it has; but there is no formal consequence the other way around. For example, this follows correctly: *Peter runs and argues; therefore Peter argues*. But the other way around is not valid: *Peter argues; therefore Peter runs and argues*. However, in *negative* copulatives there is no consequence from the whole to a part. For example, this is not valid: *It is not true that some man is a horse, and man is a stone; therefore man is a stone*. Nor does the negative even follow through formal consequence. For this is not valid: *Peter does not argue and Peter runs; therefore Peter does not run*. In case he runs and does not argue, the antecedent is true that he does not argue and run at the same time; and it is false that he does not run.

In *disjunctives* the *first* rule for arguing is: There is good consequence from a part of the disjunctive to the whole. For instance: *Peter is just; therefore he is either just or rich*. For the verification of the consequent requires nothing more than the truth of the antecedent does. The *second* is: From the full disjunctive plus denying one part there is good consequence to positing the other part. For instance, *Peter argues or runs, and he does not argue; therefore he runs*.

It is not pertinent here to speak of propositions with an extreme that is alternated or copulated or conditioned, as when I say, *Peter is white and cold*, etc., where the predicate or the subject is one copulated or alternated extreme. Such propositions are not formally hypothetical, but virtually so. And we ought to resolve, or reduce, them to the copulatives, disjunctives, or conditionals to which they correspond; and then judge them like the hypotheticals considered above.

## Chap. 24

## Exponible Propositions

Exponible propositions are those “which need to be broken down, or made clear, because of some term earning a meaning that is unfolded by several propositions.” And because they are made clear by several propositions, they are called virtually hypothetical. Now some propositions are exponible because of what is signified, like the verbs *begins*, *ceases*, *differs*, and the like. *Begins* is broken down by saying, *Now it is and before was not*. At present we omit these; they must be explained where their matter is dealt with, as in Book 6 of *Physics*<sup>1</sup> for beginning and ceasing, and in “Predicables”<sup>2</sup> for difference. Others need exposition because of the *ven'* way of signifying; and these properly belong to Dialectics.

### Exclusive Propositions

Now there are three kinds: the exclusive, the exceptive, the reduplicative. A proposition is called *exclusive*, which is modified by a term signifying exclusion, as *only*, *alone*, and the like. And it can: a) make a proposition with an excluded extreme, *viz.* when it touches the predicate, as in *Peter is only a dialectician*; b) render the whole proposition exclusive, *viz.* when it touches the subject, as in *Only man is risible*; c) exclude because of diversity, *i.e.* signify that the predicate does not belong to other subjects, as in *Only man is risible*, *i.e.* no other than man is risible; d) exclude because of plurality, as in *The predicaments are only ten*, *i.e.* not more than ten. Exclusives can be both affirmative and negative; and the negative can be in mode only or only in dictum or in both. Still it suffices here to give the exposition for the affirmative exclusive. For it will be clear from this that for the negative proposition exposition must be made in the opposite way.

Thus the exclusive proposition is broken down by means of two categoricals taken copulatively. One affirms that the predicate fits the subject and is called the fundamental proposition, *i.e.* the simple, or the one predicating without qualification one thing of another. The other

<sup>1</sup> *Phil. Nat.* 1. q. 21.  
<sup>2</sup> II, q. 10.

denies that the predicate fits another subject; and thus it is a universal negative with respect to every other subject. The example, *Only man is risible*, is resolved in this way: *Man is risible and nothing besides man is risible. The predicaments are only ten* is resolved in this way: *The predicaments are ten and they are not more than ten*. Whence it follows that an affirmative exclusive proposition is converted into a universal affirmative by interchanging the terms. For example, this is valid: *Only man is risible, therefore every risible thing is a man*. And consequently *only* is a sign of confusion with respect to the term it immediately affects, because in its converted form the term modified by *only* is affected mediately by a universal affirmative sign, which is to be confused.

There are three rules for arguing from exclusives. 1. There is valid consequence from the exponents to the exponents, and conversely. 2. From the exponent copulatively resolved there is valid consequence to any of the exponents. 3. From any of the exponents there is valid consequence disjunctively to the exponent.

And note this well. Although the particle *only* placed with the subject makes the whole proposition exclusive; placed with the predicate it makes a proposition with an excluded extreme. Still, because the exclusive so affects its term that in a sense it has appellation on the term, it is not licit to argue from the proposition with an excluded extreme to an exclusive proposition or the other way around. Thus this is not valid: *Only Adam is white, therefore Adam is only white*. For the first was true in the case when Adam alone would be white in the world; and the second is false because there are many other things in Adam besides whiteness. Likewise, these are not valid: *Only the sun shines, therefore the sun only shines; The predicables are only five, therefore only the predicables are five*.

#### EXCEPTIVE PROPOSITIONS

The second exponent is the *exceptive*; for example, if you said, *Every animal besides man is irrational*. Notice here that an exceptive proposition of this kind, if it is affirmative, has three copulative exponents: its fundamental one; a universal affirmative where the term that suffers the exception is predicated of the excepted part; and a negative where the predicate is denied of the excepted part. For example, the exponents of the proposition given above are: *Every animal that is not man, or other than man, is irrational, Every man is an animal, No man is irrational*. And the contradictory of this proposition is resolved disjunctively by means of contradictory exponents. Some more briefly resolve the particle *besides* by the particle *excepted*; saying, *Every animal with man excepted is irrational* or using the copula of implication, they say, *Every*

*animal that is not man is irrational.* Yet this is not laying down the exponents, but the equivalents according to one term. Even those need to be resolved, for *excepted* needs resolution as much as *besides*.

The rules for arguing from exceptives are these. 1. There is formal consequence from the exceptive to all of its exponents and the other way around. 2. From the exceptive resolved copulatively there is formal consequence to any one exponent, just as in any copulative proposition from the whole to a part. 3. In exceptive propositions that are resolved disjunctively and contradictorily with respect to the copulatives there is valid consequence from any one exponent to the whole through the rule for disjunctives.

#### Reduplicative Propositions

The third kind of exponible is the *reduplicative*, using the term *inasmuch as*. These are called reduplicative because in a sense they repeat the subject or predicate; for instance, saying, *Peter inasmuch as he is a man is risible*. And the same holds for these terms: *in so far as*, *for the reason that*, *under the aspect that*, *as such*, etc.

And these reduplicating terms are taken in two ways: specifically and reduplicatively. *Specifically* they repeat or apply to the subject the formal and specific concept. *Reduplicatively* they give the cause why a thing is such, and thus make the proposition causal. An example of the first, *A colored thing inasmuch as colored is the object of sight*, is taken specifically because it repeats only the formal aspect. But if you should say, *Man inasmuch as he is white is piercing to vision*, this denotes the cause why he "is piercing."<sup>3</sup>

The reduplicative proposition, when taken reduplicatively and not merely specifically, is broken down by means of four exponents: the fundamental proposition; an affirmative proposition, where the reduplicated term is affirmed of the subject of this exponible proposition; another affirmative whose predicate is affirmed of the reduplicated term; a causal proposition where the ground of the connection between subject and predicate is unfolded. For instance, if you said, *Every man inasmuch as rational is risible*, is resolved in this way: *Every man is risible; Every man is rational; Every rational being is risible; He is risible because he is rational*. This is the way the older logicians did it.

But in fact the fourth alone, *i.e.* the causal proposition, is the legitimate and sufficient exponent, and at most the third can be added, because it is implicitly contained in the causal proposition. It is sufficient to say: *Because a thing is rational it is risible; therefore it is risible in as much as rational*. For regarding the first and second exponents, it is

<sup>3</sup> For the meaning of this example, see the note above concerning the meaning of of "white." Book II, chap. 3, p. -18-Tr.

clear that they are not necessary, in fact sometimes become false, when the reduplicative is verified under some restriction, or lessening, and not absolutely. For example, if you said, *Christ inasmuch as man is a creature, Every animal inasmuch as rational is risible*. The first and second exponents are false, where it is said simply, *Christ is a creature, Every animal is risible, Every animal is rational*. For these presented absolutely are false. Thus it suffices to give the causal proposition as the exponent; and since the truth of the causal requires the third exponent, it can be added. For if it is true that a thing is risible because it is rational, it is also true that every rational thing is risible; a causal proposition, true in one case, is true in all cases.

And notice that sometimes *inasmuch as* and *under the aspect that* are taken not so much specifically and reduplicatively as lessening and restrictive, because they are verified of the subject only under some aspect and by reason of a part and not absolutely. For instance, if you said, *An Ethiopian is white from the viewpoint of teeth; Christ inasmuch as man is a creature, but is not absolutely a creature*. Then apply the rule of St Thomas<sup>4</sup> that when something can equally fit the whole and a part, yet only fits a part, it is not said absolutely but only under some aspect and through *inasmuch as*. For instance, because whiteness can apply to the whole body and a part of it, if it fits only a part, *e.g.* the teeth, it is not said absolutely of the whole. But when it can only fit a part and the whole by reason of the part, then it is said absolutely of the whole, even though it fits the part alone. For instance, a man is said absolutely to be curly-headed, even if curliness is only in the hair. And since being a creature, owing to its transcendence, is ordained to fit a supposit and a nature, it is not said absolutely of Christ without explaining that it fits by reason of the human nature.<sup>5</sup>

Notice secondly that sometimes the reduplicative does not reduplicate the cause but a condition or something concomitant. For instance, if you said: *Fire inasmuch as applied burns, Assent inasmuch as obscure belongs to faith*, where the cause is not reduplicated but a condition or mode; *Sian inasmuch as he exists acts*, where *exists* indicates a concomitance of the condition required. And then these reduplicatives are not resolved by means of a causal but a conditional proposition, in which the predicate is used reduplicatively with respect to the subject. For instance, *If man acts, he exists; If assent is of faith, it is obscure; If fire burns, it is applied*, etc.

<sup>4</sup> Sum. Theol. III. q. 16. a. 8.

<sup>5</sup> This example Heals with a truth of Faith, *vis.* that Christ is one divine person with two natures, human and divine. The author says that "to be creature" can be said both of persons and natures. Consequently, when used of Christ, creaturehood must be attributed restrictively because of the human nature, not because of the divine person.-Tr.

# JOHN OF ST- THOMAS

## *OUTLINES OF FORMAL LOGIC*

### BOOK 3

### The Third Operation of the Intellect

#### Chap. 1

#### *Consequence and Its Divisions*

##### Definition of Consequence

The third operation of the intellect is carried on by discourse, which necessarily requires inference and consequence by which one thing is deduced from another. Now consequence in general is defined like argumentation; it is, "a statement in which from one given thing another follows." And since every inference is grounded in the connection of one truth with another, when *it follows* is used in the definition of consequence, the meaning is not the same as *it is connected with*. For in this way only good consequence would be defined; only good consequence has connection and inference of one from the other. But, taken as common to good and bad consequence, *it follows* is the same as *it is said to follow*; so that wherever statements are joined by a mark of inference, it is consequence, even though in fact it is not good and fitting inference.

##### Division of Consequence

That the *first division* of consequence in general is into *good* and *bad* consequence and what each is we explained in Chapter 5 of the preceding book. One may ask: Why is consequence divided into good and bad and not into true and false? My answer is that consequence is not a proposition. True and false pertain only to a proposition, because it affirms or denies. But consequence is in the inferential connection of propositions. To it due disposition and fitness of connection are pertinent; and the fitting and ill-fitting make good or bad, not true or false.

Secondly, consequence is divided into material and formal. *Material* is that which is good solely because of some matter. *Formal* is that which is good in any matter and terms having the same form. And therefore formal consequence that is good once, is always good. For example, if you said, *Some man is rational, therefore every man is rational*, this consequence is valid in this matter, because the matter is necessary, where the universal can be inferred from one particular. But it is not valid on the strength of form, because it does not hold where the matter is different and the form the same; for instance, if you said, *Some man is white, therefore all men are white*. From this you see what

is the form of consequence, on the basis of which consequence is said to be formally good. For form is the disposition of propositions and terms according to quantity and quality and the other logical properties in order to infer one from the other. And when one follows from the other, not because of the matter that is disposed, but because of the disposition itself in any matter whatever, the consequence is called formal. And similarity of form is the agreement of the disposition of propositions in the same quantity, quality, and logical properties. Above we have already said that the logical properties are supposition, ampliation, and the like. These are distinguished better by pointing out the defects in consequence, which we shall give later.†

## Ch a p. 2

## Induction

We said in Book II, Chapter 5, on Reasoning, that all species of argumentation could be reduced to two, *viz.* induction and syllogism. For the enthymeme is a kind of cut-down syllogism; and the example, an induction that is imperfect, as St. Thomas says.‡ Whence finally St. Thomas§ gives only two ways of acquiring science, *viz.* through demonstration and induction. And demonstration indeed is syllogism, which proceeds from universals; while induction proceeds from singulars, in that all our knowledge originates from singulars, which are perceived through the senses.

### Definition of Induction

Induction, then, is defined as "advance from sufficiently enumerated singulars to the universal." For instance, if you said, *This fire warms, and this one, and this one, etc., Therefore every fire warms.* And since opposites have the same intelligible content, from this definition of induction, which is ascent, we understand its opposite, which is descent, *ē.* advance from the universal to singulars. And induction, inasmuch as *ascent*, is directed to discovering and proving universal truths, under the aspect of being universal, *i.e.* inasmuch as they are evident from the singulars comprehended under them. For you cannot prove that something is universally so, except because its singulars are so. *Descent* however from the universal to singulars is principally directed to demonstrating the falsity of the universal, under the aspect of being universal. For you best show the falsity of the universal by descending from it and by showing that some singular is not so. Nevertheless, where the truth of the

† Chaps. 12. 13. 14. below pp. 127-135.

‡ *Anal. Post.* lect. 1, no. 4.

§ *Ibid.* lect. 30, no. 12.

universal was established and discovered by means of ascent, even descent serves to show the correspondence of the universal to the particulars comprehended under it. Still, induction's principal function is to make evident the proof of a universal by ascending from singulars.

Whence it is clear that Aristotle<sup>34</sup> correctly stated the difference between syllogism and induction: that syllogism uses a middle term in order to show that the extremes are joined to each other; whereas induction proves an extreme of the middle by means of a third. The syllogism, he means, uses premises which take together a middle term joined to the extremes in order to prove by it that the extremes are joined to each other. But induction does not employ a middle term joining extremes in order to prove that extremes are joined to each other; it proves that an extreme or predicate fits some common subject, because it fits the singulars; or that it fits the singulars, because it fits them in common.

#### Kinds of Ascent and Descent

If you ask the number and kinds of ascent and descent, I say there are four: copulative, disjunctive, collected and alternated. *Copulative* ascent and descent is had when singulars are enumerated by means of copulative propositions; for instance, *Every man is an animal, Therefore this man is an animal, and that man is an animal*, etc. *Disjunctive*, when they are enumerated by means of disjunctive propositions; as in, *Some man is white, Therefore that man is white, or that man is white*, etc. *Collected* ascent or descent, when some term is resolved by means of singulars enumerated all together. For instance, *All the Apostles of God are twelve*, is resolved in this way: *That one, and that one, etc. are twelve*, enumerating all of them in one proposition. *Alternated*, when some term is resolved by means of its singulars enumerated divisively in a single proposition. For instance, if you said, *Every man is, an animal*, the predicate *animal* is resolved alternately in this way: *Every man is this or that or that animal*, so that the whole disjunction is the predicate. Whether in fact induction in its formal constitution and by its own merits is formal consequence, we shall say below?

### Chap. 3                      *The Order and Manner of Resolving Terms by Means of Ascent and Descent*

Even ascent and descent proceeds from what is singular to what is common and conversely. This procedure varies with the quantity and supposition of the term; this may be universal or particular in quantity,

<sup>3</sup> *Anal. Prior.* II. 23. 68b 15. 30.

<sup>4</sup> *Log.* I. q. 8. a. 2.



determinate or confused<sup>1</sup> in supposition. Therefore the ascent and descent are applied in different ways.

Whence two things must be considered. *First*, which ascent and descent is due this or that supposition. *Second*, what is the order of immediate or mediate descent or ascent for some term; and this is its resolution.

#### Ascent and Descent Due Various Suppositions

With reference to the first question there is a triple rule. *First*, to a term that supposes distributively, the ascent and descent due is copulative. *Second*, to a term that supposes determinately, the ascent and descent due is disjunctive. *Third*, to a term that supposes merely confusedly all together the ascent and descent due is collected; but to one confusedly supposing alternately the ascent and descent due is alternated. However, this collected or alternated ascent is not properly resolutive, but manifestive of truth; for giving a term either supposing confusedly or enumerated alternately remains equally obscure. Therefore such a term remains simply unresolvable and immobilized; that is, because there can be no motion or progress in it by means of resolution from singulars to universals or contrariwise.

#### Order of Ascent and Descent

Regarding the second question, when there are several terms supposing in different ways, it is not possible to descend and ascend equally immediately under just anyone of them. And thus for deciding this there are three rules. 1. One ought first to descend under a term supposing determinately with reference to a distributed term before descending under the distributed term. Yet it is possible to descend immediately under the distributed. And the opposite is a defect, which is called "from several determinates to a single determinate." For ascending therefore a term supposing determinately is always more suitable; for descending, a distributed term. For instance, if you said, *Some man is not white*, you do not validly ascend immediately under the distributed term, saying, *Some man is not this white thing, nor this white thing, Therefore some man is not white*. But it is valid under a particular term supposing determinately; still one may immediately descend under the distributed. And thus with ascent there is dependence on this prior resolution, but not with descent.

2. Under a term confusedly supposing alternately with reference to an antecedent universality, a disjunctive descent is not licit before you

<sup>1</sup> Book II. chap. II, has the explanation of these technical terms. The reader is advised to refresh himself on their precise meaning; above pp. 63-65.-Tr.

descend under the universal term; however, ascent is quite valid. For instance, if you said, *Every man is an animal*, it is not valid: *Therefore every man is this animal or that animal, etc.* Yet ascent is valid: *Every man is this animal, or every man is that animal; therefore every man is an animal.* Therefore in descending, the resolution of the confused term depends on the resolution of the distributed antecedent. And the opposite is the defect “from a single distribution to several determinates”—concerning this, Chapter 13 below.

3. If all terms suppose distributively or all determinately, resolution can begin immediately from any term in ascent and descent as far as the force of supposition is concerned, unless there be an impediment from some other direction. For instance, if you said with distributive supposition, *No man is a stone*, or determinately, *Some man is white*, you may begin from any term whatever. And thus the resolution of terms in case of ascent, which serves the proving of truth, has this order: first the term standing determinately is resolved, second the distributed. In case of descent however, we can begin from the distributed term; but from the confused only if after descent under the distributed. And it is always understood that descent and ascent take place with no variation in logical properties: in the kind of supposition, restriction, ampliation, appellation, etc. This must chiefly be considered in complex terms, especially those that consist of a determination and a determinable, where the diversity of restriction chiefly stands in the way of making a resolution immediately or mediately. Later we shall handle this in dealing with the defects in consequence<sup>2</sup> and below.<sup>3</sup>

## Two Rules for Relatives

Finally in relatives there are two rules. *First*, in reciprocal relatives it is not licit to make resolution of ascent and descent before resolving under the antecedent; because it supposes with the same supposition as its antecedent, and is called imaged supposition. *Second*, the non-reciprocal relative does not have in its resolution a necessary dependence on its antecedent. For instance, if you said, *Every man is an animal, and it is rational*, you can descend or ascend under *it* before under *every man* or under *animal*, as with a term put in a distinct proposition.

## Chap. 4

## *Syllogism and Its Matter and Form*

### Definition of Syllogism

Syllogism is defined as “a statement in which, after certain things have been stated and granted, it is necessary that another thing follow

<sup>2</sup> Book HI. chap. 13, below pp. 128-130.

<sup>3</sup> Log. I, q. 7, a. 2.

because these things have been stated.” Note, therefore, that the force of syllogism is this: to order discourse according to the connection of terms among themselves. Induction does this through resolution and reduction to singulars. So the syllogism must deal both with terms which can be united to one another and with the reason, or middle, on account of which they are joined. Hence from the middle applied to, or joined with, the extremes, it joins and infers that the extremes are joined among themselves. And this is the whole order and progress of syllogism: to infer and deduce some proposition where the two terms, or extremes, are joined owing to another proposition or propositions unfolding the middle, or reason, why they can and ought to be joined among themselves. And for this reason we say in the definition: (a) that it is “a statement in which, after certain things have been stated,” *viz.* the premises in which the middle term is applied to the extremes; (b) “it is necessary that another thing follow,” *i.e.* to infer a conclusion where the extremes are joined among themselves; (c) “because they have been stated,” *i.e.* from the force and positing of the premises. An example of this is in the following syllogism: *Every body is a substance, Every man is a body, Therefore every man is a substance.* Here you see three propositions: two that are the inferring premises; a third that is the conclusion. And in the third the two extremes, *man* and *substance*, are joined; while in the premises the middle, carrying the reason why those extremes are joined, is applied to the extremes. And the middle term is *body*, which, as it fits man and substance, makes man and substance fit each other.

#### Matter and Form of Syllogism

From this therefore it arises that a syllogism is made up of matter and form, just like any product of art. *Form* is the very arrangement and device that orders and disposes the matter, so that it can suitably infer and conclude. *Matter* is twofold: one is proximate, the other remote. The propositions are the *proximate* matter from which the syllogism is constructed. The terms, or extremes, are the *remote* matter; they make up the proposition and into them the syllogism is ultimately resolved. And therefore in connection with syllogism the term is defined by Aristotle as that into which the proposition is resolved as into subject and predicate.<sup>1</sup> And it is defined by means of the resolution, as St. Thomas says,<sup>2</sup> because our knowledge and judgment proceed by resolving a thing into its causes; whence the term as serving judicative and resolutive activity is defined by means of resolution, not of composition. And we say “as into predicate and subject,” because the verb is not a term with reference to syllogism, but is the joining; whereas only the term is said

<sup>1</sup> *Anal. Prior.* I, 1, 24b 16.

<sup>2</sup> *Sunt. Tot. Log. Arist.* tr. 7, c. 1.

to be that which fares as an extreme that infers or is inferred. And thus the joining function of the verb composes not only what belongs to the enunciation in relation to truth, but also what belongs to the connection in relation to inference. Hence when the syllogism is broken down, the link or verb-copula is not that into which it is resolved, but rather that which is itself unloosed.

Therefore the propositions in a syllogism are only three: two for the premises that do the inferring, one for the conclusion that is inferred. And the first of the premises is called the *major proposition*; the second the *minor proposition*; the third the *conclusion*, or *consequent*.<sup>3</sup> The terms likewise cannot be other than three, even though they are multiplied in the three propositions. Two of these terms are *extremities*, which are to be joined in the conclusion. The other is the *middle*, which is joined with the extremities in the premises, but does not come into the conclusion, for it infers that. And one extremity is called the *major*, the other the *minor*. The *major* extremity is that employed in the major and put in the conclusion. The *minor* extremity is that employed in the minor and put in the conclusion. The *middle* is the term put twice in the premises, but not in the conclusion. And by the noun *term* we do not mean only something simple and non-complex; but also something complex, provided it functions for one extreme or the middle.

Now the form of syllogism can also be said to be twofold, corresponding to this twofold matter, proximate and remote. Since the form of syllogism is the ordination or disposition of its matter, this disposition by which the remote matter, or terms, is ordered is called figure. But that by which the proximate matter, *viz.* the propositions, is ordered is called mode. Thus *figure* in syllogism is the disposition of terms according to subject and predicate use. *Mode* is the arrangement of premises, or propositions, with the right quantity and quality. That the quality be right at least one of the premises must be affirmative; all may not be negative. That the quantity be right at least one must be universal; all may not be particular. Figures arise from the subject-predicate role of the middle term with reference to the extremes. And according to the combination of different roles as predicate and subject the different figures result, as we shall say in the following chapter.

## Chap. 5 *Division of Syllogisms According to Matter and Form*

### Divisions of Syllogism Based on Matter

Syllogisms can be divided either according to matter or according to

<sup>3</sup> The text has "*conclusio seu consequentia*." I have translated *consequentia* by *consequent*, because John of St. Thomas distinguishes (see below Book III, chap. 11; *Log.* I, q. 8, a. 3) between premises, conclusion and consequence (*consequentia*) in such a way that the conclusion could never be called the "consequence."

form. According to matter, first we have the division that pertains to the content of *Posterior Analytics*, viz. that syllogisms are of four kinds: demonstrative, probable, sophistical, erroneous. The *demonstrative* produces science and consists of necessary matter. The *probable* consists of contingent matter and produces opinion. The *erroneous* consists of incompatible matter and produces error. The *sophistical* does not keep to correct rules, but fallacious ones, and produces deception.

Secondly, syllogisms are divided into common and expository. The *common* is one that has a common term for the middle. The *expository* is one that has a singular term for the middle. Whence this division is from the viewpoint of matter, because from the viewpoint of the terms.

Syllogisms can also be divided into *hypothetical* and *categorical*, *affirmative* and *negative*, on the basis of the propositions which constitute them.

#### Divisions of Syllogism Based on Form

According to form syllogisms are divided first by the three figures. And in any figure there are several modes, *scil.* sixteen, both useful and useless, perfect and imperfect. But all these are reduced to nineteen useful modes, which are contained in these verse lines:

(Fig. 1) *Barbara, Celarent, Darii, Ferio, Baralipon,*  
*Celantes, Dabitis, Fapesmo, Frisesomorum.*

(Fig. 2) *Cesare, Camestres, Festino, Baroco.* (Fig. 3) *Darapti,*  
*Felapton, Disamis, Datisi, Bocardo, Ferison.*

A *perfect* mode is one in which the regulative principles of the syllogism are kept perfectly; they are: *dictum de omni* and *dictum de nullo*, as will be explained later. An *imperfect* mode is one in which these principles are not kept perfectly, and can therefore be reduced to the perfect. A *useful* mode is one in which the rules necessary for valid consequence are kept; a *useless* mode, in which such rules are not kept. A *direct* mode, where you conclude directly by predicating in the conclusion the major extremity<sup>1</sup> of the minor. An *indirect* mode, where conversely in the conclusion the minor extremity is predicated of the major.

Now three figures can be given, and there are no more, because there can be only four combinations. For the middle is either predicate in each premise; or subject in each; or subject in the major and predicate in the minor; or finally, and conversely, predicate in the major and subject in

<sup>1</sup> The meaning of the vowels and consonants in this memory verse will be explained in the text. To get the rhythm of this verse stress the following syllables:  
 Bárbara Célarént Darii Ferió Baralipon  
 Célantés Dabitis Fapésmo Frisesomórum  
 Césare Cámestrés Festino Baróco Darápti  
 Félapción Disamis Datisi Bocárdo Ferison.-Tr.

the minor. However, one must give attention to this, that of these four combinations the last concludes indirectly. And syllogisms concluding indirectly are reduced to direct syllogisms. Therefore the *fourth figure*, which always concludes indirectly, is always reduced to the first figure after the premises are transposed; and therefore, as not being distinct from it, is not numbered separately. Now a syllogism is said to conclude directly when in the conclusion the major extremity is predicated of the minor extremity; whereas indirectly when the other way around, because the major extremity is the superior extreme. And it directly fits the superior term to be predicated, while to be subject fits the inferior. Whence for this you ought in the conclusion to predicate of the minor extremity what in the major you also predicate of the middle as something superior. And therefore the direct figure is one where the middle is subjected in the major, and the major extremity is predicated of the middle. And this is the *first figure*. While if the middle is predicated in the major, and the major extremity is subject, the concluding is indirect. Thus it ought to be reduced to the first figure by interchanging the premises. And therefore the fourth figure is not admitted as distinct, but is reduced to the first; because figures are not divided except on the basis of different, direct and natural manners of concluding; not on the basis of indirect manner, since this pertains to, and is reduced to, the direct.

And thus *three figures* remain as distinct. *First*, where the middle is subject in the major and predicate in the minor. *Second*, where the middle is predicate in both premises. *Third*, where the middle is subject in both. Below we shall give examples, when we go through all the modes of the figures.

Ch a p. 6

### *Explanation of AU Three Figures and the Modes of the Syllogism*

The figures, as was said, are nothing else than the different combinations according to predication and subjection of the middle term, and the modes are combinations according to quantity and quality of the propositions. Consequently, in each figure there can be sixteen combinations of modes based on quantity and quality. For the *quantity* of propositions can be varied in four ways: both premises can be universal or both particular; or the first is universal and the second particular, or conversely, the first particular and the second universal. Likewise for *quality*: either both premises are affirmative or both negative; or the first is affirmative and the second negative, or conversely, the first negative and the second affirmative.

Thus, given the four combinations relative to quality and relative to quantity, among themselves quantity and quality can be mixed in six-

teen modes, because each individual mode and combination of quantity admits of four modes of quality, and the other way around. For example, if both premises are universal, which is the first combination relative to quantity, there can also be in that combination four modes of quality, since those two universals are both affirmative or both negative; or the first is affirmative and the second is negative, or the converse. And clearly the same can take place in each of the other combinations. Whence, with four modes relative to quantity and four relative to quality, and each of these four able to be affected by the others, there results in each figure sixteen modes owing to the different quantity and quality.

But not all modes are useful, *i.e.* have valid and legitimate consequence. In order to determine which modes in each figure are useful and which useless, you must consult the rules that are required for valid consequence in these syllogisms. And a mode that observes all these rules will be useful; one that does not will be useless.

Of the rules then required for a good syllogism some are general for all figures, some are special for each one.

#### FOUR RULES COMMON TO ALL FIGURES

There are four common rules. *First*, nothing follows from particulars and indefinites alone. *Second*, from negatives alone nothing follows. The reason for both conditions is taken from that general principle which the whole framework of the syllogism rests on, as will be explained below: "whatever things are identical with one third thing, are identical with one another." That is, from the fact that the extremes are joined to something, they are joined to one another. Therefore they ought to be joined at least in some one of the premises and not separated or negated in both; and likewise, that the middle in which they are joined encompass the extremes and be distributed in them, otherwise they are not said of every or of none. Therefore at least some one of the premises ought to have distribution and affirmation. *Third*, no term ought to be distributed in the conclusion that was not distributed in the premises; otherwise the argument would be from the not-distributed to the distributed. *Fourth*, the middle ought not to enter the conclusion, as was said. And so even' syllogism that infers a negative conclusion is negative, a particular conclusion, particular.

#### FOUR RULES FOR INDIVIDUAL FIGURES

From these general rules four other particular rules for individual figures are derived. The *first* is: In the first figure when the modes conclude directly, the major cannot be particular, and the minor cannot be negative. The reason is that if the major is particular, the middle is not

distributed, seeing that the middle ought to be subjected in the major and predicated in the affirmative minor. While if the minor is negative, it will infer a negative conclusion where some term would be distributed that would not be distributed in an affirmative premise. For instance, if you said, *Every man is an animal, No horse is a man, Therefore no horse is an animal*, *animal* is distributed in the conclusion and not in the premises. However, when the modes conclude indirectly, the major can be particular, because in these the middle is not subjected; and the minor can be negative, as in *Fapesmo* and *Frisesomorum*. The *second* rule, for the second figure, is: If both premises are affirmative, nothing is concluded. The reason is that since the middle in the second figure is predicated in both premises, when both premises are affirmative, the middle is not distributed. The *third* rule is for the same figure: If the major is particular, nothing follows. The reason is that then some term would be distributed in the conclusion that would not be distributed in the premises. For instance, if you said, *Some animal is a man, No horse is a man, Therefore no horse is an animal*, *animal* is distributed in the conclusion and not in the premises. The *fourth* rule, for the third figure, is: If the minor is negative, nothing is concluded. The reason is that then the major ought to be affirmative and accordingly its predicate is not distributed; however it would be distributed in the conclusion. For instance, if you said, *Every man is an animal, No man is a horse, Therefore no horse is an animal*, *animal* is distributed in the conclusion and not in the premises.

#### Useless Modes in First Figure

Keeping these rules in sight one can readily discard all the useless modes in any figure. For in the first figure all four of the sixteen combinations with only particular propositions and all four with only negative propositions ought to be rejected on the basis of the two first general rules. Next, all that have a particular major and all that have a negative minor ought to be rejected. Whence there remain only four modes where we find both premises are affirmative with a universal major, or one is negative with an affirmative minor. And these are: *Barbara*, *Celarent*, *Darii*, *Ferio*. For these vowels, as we said in the preceding book (chapter on Conversion),<sup>1</sup> signify: A, a universal affirmative; E, a universal negative; I, a particular affirmative; O, a particular negative.

Nevertheless, because these two particular rules of the first figure are required, as we said, only for concluding directly, not indirectly; therefore other indirectly concluding modes can be admitted in the first figure. In these the major may be particular or the minor negative, provided

<sup>1</sup> Book II. chap. 19, above p. 86.



they conclude indirectly, so that the major extremity in the conclusion is not the predicate of the minor, but its subject. And here are the five modes designated by these five words: *Baralip-ton*, *Celantes*, *Dabitis*, *Fapesmo*, *Frisesomorum*. Preserved in all of these is the indirect conclusion, viz. the minor extremity is predicated of the major; but not in all is the major premise particular or the minor negative, though it can be. An example of a directly concluding syllogism in the first figure: *Every animal is living, Every man is an animal, Therefore every man is living*. An example of one concluding indirectly in *Celantes*: *No stone is an animal, Every animal is sensitive, Therefore no stone is sensitive*\*

#### Useless Modes in Second Figure

Likewise in the second figure twelve of the possible sixteen combinations are excluded. For eight are excluded by the first two general rules, viz. from particulars only and negatives only. Also, the second and third rules exclude the combination with both premises affirmative, or with the major particular. And each of these combinations can appear twice, viz. both affirmative with the first premise particular and the second universal or contrariwise, and both premises particular with the first premise affirmative and the second negative or contrariwise. And thus there remain only four useful modes, namely *Cesare*, *Camestres*, *Festino*, *Baroco*. This is an example in *Cesare*: *No animal is a stone, Every piece of marble is a stone, Therefore no piece of marble is an animal*.

#### Useless Modes in Third Figure

Finally, in the third figure ten combinations are excluded, eight namely by the general rules. While from the fourth rule: if the minor is negative, nothing is concluded, whether the first premise is particular and the second universal or the other way around—this means the exclusion of two other combinations. And so six useful modes remain, namely *Darapti*, *Felapton*, *Disamis*, *Datisi*, *Bocardo*, *Ferison*.

<sup>2</sup> This example raises more issues than it clarifies. It is given to exemplify an indirect conclusion. As defined in the text—a conclusion that predicates the minor term of the major—*No stone is sensitive* is an indirect conclusion in the formal sense. But it is not an indirect proposition; this would have to be *No sensitive (thing) is a stone*. For the indirect proposition see J. Maritana, *Formal Logic*, Sherd-Ward, 1946, note to p. 187.

Moreover, one would think, from Chapter 5, that the author would give an example in *Celantes* as an indirect first figure. Thus, in the next chapter his examples in *Fapesmo* and *Baralip-ton* are in the indirect first figure, with conclusions that are indirect propositions. But here he gives *Celantes* in the fourth figure, concluding with a direct proposition. In the fourth figure *Celantes* is an invalid mode. The predicate of the conclusion of a fourth figure *Celantes* is distributed, while the same term is undistributed in the minor premise. Thus *sensitive* is distributed in the conclusion, undistributed in the minor. The syllogism would be valid if one indicated that *sensitive* be given the same extension as *every animal*, which it can have.—Tr.

And thus all the useful inodes are nineteen; they are contained in the verse given above.<sup>3</sup>

And notice that in this third figure the first two modes, namely *Darapti* and *Felapton*, although they have both premises universal, conclude to a particular and not to a universal. If they concluded to a universal, the argument would be from the not-distributed to the distributed in opposition to the third rule. For example, it is dear in this syllogism in *Darapti*: *Every animal is sensible, Every animal is a substance, Therefore every substance is sensible*. Here *substance* is distributed in the conclusion and not in the premises.

## Chap. 7 *Reduction of the Imperfect Syllogism to the Perfect*

Commonly we specify two properties of the syllogism, even though Aristotle gave six. But at present it is sufficient for us to explain the two main ones. The *first* is the property of giving several conclusions. The *second* is the property of reduction of imperfect syllogism to perfect ones.

### Property of Giving Several Conclusions

The property of giving several conclusions is nothing else than this: from the very fact that one concludes to some consequent or conclusion, one can also conclude to what follows from such a consequent. For instance, if a universal affirmative or negative is concluded, the particular contained under it can also be concluded. And likewise a syllogism can conclude to the converse of its conclusion and to the equipollent; and in general to whatever follows from such a conclusion. And all this is prerequisite to ostensive reduction, which we shall deal with very soon.

### Property of Reduction to Perfect Syllogisms

The property of reduction of imperfect syllogisms to perfect consists in this: those syllogisms, in which *dictum de omni* and *dictum de nullo*—which are the regulative principles of the syllogism, as we shall see below in Chapter 10—do not appear so evidently and perfectly, are reduced and tested by means of those where such principles are evidently and perfectly kept intact. Now the most perfect modes of concluding are the first four of the first figure, *scil. Barbara, Celarent, Darii, Ferio*. For all inferrible conclusions are either universal affirmative or universal negative or particular affirmative or particular negative. And a universal affirmative is most perfectly inferred in *Barbara*, a universal negative in *Celarent*, a particular affirmative in *Darii*, a particular negative in *Ferio*—as we shall show below in Chapter 10.

<sup>3</sup> Book III. chap. 5, above p. 110.

**M**mo/. Prior. III, 1-15, 52b 38 sq.

Therefore all the other modes concluding directly or indirectly can be reduced to these four modes and be tested by them. Reduction is of two kinds: one ostensive, the other *per impossibile*. *Ostensive* reduction employs two principles: conversion of one proposition and interchanging, *viz.* the major is changed to the minor and contrariwise, because only this reduction shows in a clearer manner that the premises can be arranged so that the rule *dictum de omni* and *dictum de nullo* is more obviously noted there. And all this is grounded on that principle given above: whatever follows from the consequent, follows from its antecedent.

Reduction *per impossibile* tests by deducing to two contradictories true at the same time, which is impossible. And for this you assume the contradictory of the denied proposition, you add one conceded proposition, then infer the contradictory of the other conceded proposition; and consequently you infer two contradictories true at the same time. And the reduction is grounded in that principle: where there is valid consequence the contradictory of the antecedent follows from the contradictory of the consequent.

And by this reduction *per impossibile* all imperfect modes can be reduced to perfect ones, because in every useful mode where the consequence is denied, the contradictory of what is denied must be conceded. From this conceded contradictory and another conceded premise the contradictory of the other follows. However, two modes especially are said to be reduced *per impossibile*, namely *Baroco* and *Bocardo*, because they are not reducible in any other way.

We shall present examples of both ways of reducing. For instance, I wish to reduce to the perfect mode *Ferio* the imperfect mode of the same figure, *Fapesmo*. I make a syllogism in *Fapesmo* in this way: *Every body has size, No soul is a body, Therefore something having size is not a soul.* I reduce it to *Ferio* by interchanging the premises, *i.e.* by putting the major in place of the minor and the minor in place of the major; and I convert the affirmative proposition accidentally and the negative proposition simply. Thus I form this syllogism: *No body is a soul, Something having size is a body, Therefore something having size is not a soul.* I wish to reduce *Darapti*, which is the first mode of the third figure, to *Darii*. I form a syllogism in *Darapti* thus: *Every animal is a substance, Every animal is sensible, Therefore some sensible thing is a substance.* I reduce this to *Darii* by converting the minor accidentally, and say: *Every animal is a substance, Some sensible thing is an animal, Therefore some sensible thing is a substance.*

Similarly, for reduction *per impossibile* I give an example in *Baroco*, which is the fourth mode of the second figure, and reduce it *per impossibile* to *Barbara*. I form a syllogism in *Baroco* thus: *Every animal is*

*sensible, Some stone is not sensible, Therefore some stone is not an animal.* If you deny the consequence, I state the contradictory and say that therefore the contradictory is true, namely, *Every stone is an animal.* This granted, I take the former syllogism's major, which was conceded, and this contradictory for the minor, and infer the contradictory of the conceded minor. And therefore I force you to concede two contradictories in *Barbara*, thus: *Every animal is sensible, Every stone is an animal, Therefore every stone is sensible.* But you had conceded that some stone is not sensible. Therefore you are admitting two contradictories.

Again, I wish to reduce *per impossibile* a syllogism in *Bocardo*, which is the fifth mode of the third figure, to *Barbara*. I form a syllogism in *Bocardo*: *Some virtue is not natural. Every virtue is a habit, Therefore some habit is not natural.* If you concede the major and minor and then deny the consequence, I take the contradictory of the denied proposition and say that therefore the contradictory is true, namely, *Every habit is natural.* And I take this proposition for the major, keep the conceded minor, and form a syllogism in *Barbara* inferring the contradictory of the major thus: *Every habit is natural, Every virtue is a habit, Therefore every virtue is natural.* And this is the contradictory of that major, *Some virtue is not natural.*

So that one can easily commit to memory what modes are reduced to others and how, notice the skill with which the verse given above, *Barbara, Celarent*, etc., was constructed. For the first four begin with the first consonants B, C, D, F. And all the modes, whether in the first or second or third figure, begin with one of these letters, in order to show that any mode is reduced ostensibly to the one that begins with a similar letter. And thus *Baralipon* is ostensibly reduced to *Barbara*. However, *Bocardo* and *Baroco* are not reduced ostensibly to *Barbara*, but *per impossibile*, because it is necessary to take the conclusions contradictory', which is a universal affirmative, in order to put it into *Barbara*. And this is to reduce *per impossibile*, namely by taking the contradictory of the conclusion. To *Celarent* ostensibly reduce *Celantes*, *Cesare*, *Camestres*. To *Darii* ostensibly reduce *Dabitis*, *Darapti*, *Disamis*, *Datisi*. To *Ferio* reduce *Fapesmo*, *Frisesomorum*, *Festino*, *Felapton*, *Fersion*. And so each word, depending on the initial letter, must be reduced ostensibly to a similar word with a like letter in one of the first four modes.

One will also find in these words other consonants, which were put there on purpose. They indicate either the conversion of a proposition that must be made, or the interchanging of premises. They are the three letters, P, S, M. Where you find the letter S, it signifies that that proposition must be converted *simply*; where you find the letter P, that it must be converted *accidentally*; where you find the letter M, that the premises must be interchanged. For example, in *Fapesmo* you find the letter P after the first A; it signifies that the affirmative universal must be con-

verted accidentally. You find the letter S after E; it signifies that the universal negative must be converted simply. And the letter M signifies that the premises must to be interchanged, to wit the major for the minor; and in this way it is reduced ostensibly to *Ferio*. You can see this easily in the other words also. But when you find the letter C, this signifies that that mode cannot be reduced ostensibly, but only *per impossibile*. This is found only in *Baroco* and *Bocardo*.

As a special case, however, in the ostensive conversion of *Baralipton*, notice that it indirectly infers a particular affirmative. And it has the letter P, not after one of the premises, but after the conclusion. This is to indicate that it is reduced to *Barbara* by retaining the identical premises of *Baralipton* and by inferring immediately and directly the conclusion of *Barbara*, which is a universal affirmative. And since this latter is converted accidentally, by means of valid consequence, one who infers immediately a universal affirmative in *Barbara*, can also infer, after converting accidentally, the indirect particular affirmative, which was the conclusion in *Baralipton*. And thus *Baralipton* is not reduced by converting or transposing it into *Barbara*; but by deducing *Baralipton* from *Barbara* through conversion-by-accident of the conclusion, which is a universal affirmative. For example, this syllogism is in *Baralipton*: *Every animal is a substance, Every man is an animal, Therefore some substance is a man*. I reduce it to *Barbara* by proving that such a conclusion is inferred mediately from *Barbara*. Thus, *Every animal is a substance, Every man is an animal, Therefore every man is a substance*. And through conversion-by-accident: *Therefore some substance is a man*. This was the conclusion of *Baralipton*.

Now as to reduction *per impossibile* of syllogisms, it is certain that all imperfect syllogisms, whether of the first or second or third figure, can be reduced *per impossibile* to the first four modes. But not in the same way as in ostensive reduction to a similar initial letter in the first four modes; except in the case of *Baroco* and *Bocardo*, which are reduced to *Barbara* by taking the contradictory' of the inferred conclusion, which is a universal affirmative. For reducing all the rest of the modes *per impossibile*, always pay attention to the inferred conclusion and take its contradictory; put it in place of one of the premises and with the other; and infer the contradictory or the contrary of the other conceded premise. And thus you deduce to the impossible, which is to concede two contradictories or contraries.

But in order to do this easily and quickly, notice that in the five imperfect modes of the first figure, namely, *Baralipton*, *Celantes*, *Dabitis*, *Fapesmo*, *Frisesomorum*, one ought to take the contradictory of the conclusion and put it in place of the major, and put the conceded major in place of the minor; and infer the contrary of the conceded minor. How-

ever, make an exception for *Celantes*, where the conclusion's contradictor}', since it is particular, ought to be put in place of the minor, and the minor of *Celantes* be put for the major and thus infer in *Darii* the contradictory of the conceded major. While in the modes of the second figure, if there is some syllogism and you wish to reduce it *per impossibile*, take the contradictor}' of the conclusion and put it in place of the minor; together with the major of the syllogism infer the contrary or contradictor}' of the conceded minor. But in the modes of the third figure, take the contradictory of the conclusion and put it in place of the major; and with the same minor infer the contradictory or the contrary of the conceded major.

And although these rules alone lead in actual practice to the real reduction *per impossibile* of any syllogism to the mode among the four perfect ones corresponding to it; still a verse was made up that corresponds to all the imperfect modes. It has those four letters: A, E, I, O. A denotes reduction *per impossibile* to *Barbara*; E to *Celarent*; I to *Darii*; O to *Ferio*. This is the verse:

*Febiferaxis obit terras spheramque quotannis.\**

Others put the vowels in this order: *Nesciebatis, Odiebam, Laetare, Romanis*.<sup>3</sup> They come to the same thing.

*Febiferaxis* has five vowels and they correspond to the imperfect modes of the first figure. The first vowel E denotes that the first imperfect mode, namely *Baralipon*, is reduced to *Celarent*. The second vowel I, the second mode *Celantes* to *Darii*. The third vowel E, the third mode *Dabitis* to *Celarent*. The fourth vowel A, the fourth mode *Fapesmo* to *Barbara*, and so on for the other vowels. *Obit terras* corresponds to the four modes of the second figure; *spheramque quotannis* to the six modes of the third figure. And the first vowel O says that the first mode of the second figure is reduced to *Ferio*. The second I, that the second is reduced to *Darii*, and so on for the others.

Ch a p. 8

### *The Expository Syllogism*

We call that syllogism expository "that has a singular term for the middle," and it is called expository, as St. Thomas says,<sup>1</sup> because there is a certain sensible resolution, which as it were exhibits the thing to the senses. For instance, if you said, *Peter is white, Peter is one running, Therefore one running is white*. And on account of that nearly all expositor}' syllogisms are in the third figure, because there the middle is subject in each premise, and a singular term is more fittingly subject

<sup>2</sup> The rhythm is shown by the following accented syllables:

Fébiferáxis obit terras spherámquequotannis.

<sup>3</sup> Nesciebatis, Ódiebám, Laetáre, Románis.-Tr.

<sup>1</sup> *De Nat. Syllog.*

than predicate. However, it can also be in the other figures. But because the other extremities are common terms and not singulars, in those figures you ought to keep all the conditions that are kept in other syllogisms and avoid the defects that can be met. At any rate, since the middle itself is not a common term, but singular, it cannot be distributed nor universalized, but rather ought to be perfectly singularized. Whence if it is not perfectly and completely singularized, there will be a defective syllogism. This is especially to be watched for in divine terms. The terms *God* and *divine essence*, and others that pertain to absolutes, are singulars in such a way that they are equivalently common terms, because they are in the reality itself communicated to several persons. Hence they are not suited to expository syllogism; just as this is not valid: *This God is Father, This God is Son, Therefore the Son is the Father*. The middle is not perfectly singularized. Hence it must be used as a common term, and consequently if placed for the middle, it ought to be distributed, saying, *Everything that is God, is the Father; Everything that is God, is the Son*. But these are false premises.

Secondly, it is required that the middle, which is a singular term, have acceptance for the same individual; otherwise you commit an equivocation of the middle or different acceptance; or you argue with four terms. And thus it is not valid: *This animal is a horse (pointing to a horse), This animal is a man (pointing to Peter), Therefore a man is a horse*. The middle is not accepted for the same thing.

Thirdly, since expository syllogisms take place in the third figure, you must be on your guard lest the minor be negative, according to the rules of the third figure. For this reason it is not valid: *Peter is a man, Peter is not Paul, Therefore Paul is not a man*. But on the contrary this is valid: *Peter is not Paul, Peter is a man, Therefore some man is not Paul*. And it is in *Ferison*.

## Ch a p. 9

## *How to Discover the Middle*

Formerly it was considered exceedingly difficult to know perfectly and clearly how to discover the middle. Today this matter is figured out by an easy process; not as some think, who merely assign as middle the cause and reason why the predicate fits the subject. Nor, as others say that in order to reach an affirmative conclusion you take as middle what the subject and predicate are identified with; and for a negative conclusion, you take what one extreme is identified with and the other set apart from. For this is what we are asking about: what is that in which the extremes are identified or one of them set apart, and what is the rea-

son and canse why the predicate fits the subject? With reference to this matter you can consult the brief opuscle of St. Thomas.<sup>1</sup>

You must advert then to this, that even' conclusion to be inferred is universal affirmative or universal negative, particular affirmative or particular negative. Now the term that is taken for the middle ought to be communicated and joined to the extremes or separated from one of them for this purpose, that the extremes themselves be joined or separated. But the extremes to be joined together are the subject and predicate in the conclusion. Consequently you ought to take as a middle, unitive or divisive of both, either something that is a superior or an inferior predicate, or an equal or repugnant, *i.e.* extraneous, one. And the older logicians called the superior or equal predicate the *consequent term*, because it followed from another; just as from *man* you infer *animal*, which is superior, and *risible*, which is equal; for both are contained in *man*. The inferior predicate however they called the *antecedent term*, because it does the inferring but is not inferred from the superior. For *man* does not follow from *animal*, but the other way around. And they called the repugnant predicate an *extraneous term*.

Consequently, in order to infer a universal affirmative, which is only concluded to in *Barbara*, you will take as middle some term consequent on the subject, whether a superior predicate or an equal one, but antecedent or inferior to the predicate. For example, if you wish to prove that every man is an animal. As the middle you take *risible*, which follows on *man* and from which it follows to *animal*, or antecedes *animal*. You say, *Every risible being is an animal, Every man is risible, Therefore every man is an animal.*

On the other hand, in order to infer a universal negative you take as middle that term which follows on the subject and is repugnant to the predicate. And this holds for *Celarent*, which is the second mode of the first figure, and for *Cesare*, the first mode of the second figure. But in *Camestres*, where the minor is negative, you ought conversely to look for a middle that is repugnant to the subject and follows on the predicate. The reason is, the middle ought to be separated from the minor extremity and follow on the major. For instance, in order to conclude that no man is a stone, a good middle in *Celarent* and in *Cesare* is *rational* or *risible*, which follows on *man* and is repugnant to *stone*; but in *Camestres* it is *insensible*, which fits *stone* and is repugnant to *man*.

In order to infer a particular affirmative, if the inference is in the first figure, as in *Darii*, a fitting middle will be a term that follows on the subject and antecedes the predicate. For instance, to infer that some animal is a substance, a fitting middle is *sensible*, which is inferred from *animal*

<sup>1</sup> *De Invent. Med.*



and infers *substance*. But if the inference is in the third figure (for in the second a particular affirmative is not inferred), as in *Darapti* or *Disamis*, a fitting middle will be a term that antecedes, *i.e.* one inferior to the predicate and the subject; and it ought to be subjected in each premise. For instance *man*, when you infer that some animal is a substance because man is an animal and is a substance.

Finally, the case of inferring a particular negative, which can be concluded in all three figures. If the inference is in the first figure, take as the middle that term which follows on the subject and is repugnant to the predicate. For instance, in order to conclude that some animal is not a stone, I take *man* as the middle, saying, *No man is a stone, Some animal is a man*. Or if I wish to conclude, *Some animal is not a horse*, I take *rational*, which is consequent to *some animal* and repugnant to *horse*. I say, *No rational thing is a horse, Some animal is rational, etc.* But if the particular negative is inferred in the second figure, in fact in the third mode, which is *Festino*, let the same middle be taken as in the first figure. While in *Baroco* let a middle be taken that is extraneous to the subject and consequent on the predicate. For instance, for the conclusion given above, *Some animal is not a stone*, take as the middle *insensible*, which is repugnant to *animal* and follows on *stone*. Lastly, if the inference is in the third figure, take as middle that term which is the antecedent, *i.e.* inferior to the subject and extraneous, or repugnant, to the predicate. For instance, for the conclusion given above take *rational*, which is inferior to *animal* and repugnant to *stone*.

## Ch a p. 10

## *The Principles That Ground The Whole Art of Syllogizing*

The whole syllogistic procedure is grounded on three principles known per se.

### Fir st P r in c i p l e

The first principle is: "Whatever things are identical with one third thing are identical with each other." On this principle the force of discursive proof rests. For since discursive reasoning is ordered so as to infer a conclusion where two extremes are joined together on the strength of some middle that makes this uniting evident, it ought to join things to each other because united in a middle term. Contrarily, if the reasoning infers a negative conclusion, where one is denied of and separated from the other, by necessity some one of them is denied of and separated from one third thing—"for in things identical with each other, if one of them is distinguished from one third thing, the other also is distinguished and separated from that third thing." And consequently from the negation of

one thing with reference to some third thing there follows the negation of the thing that on its own part is identified with the same thing.

Note that St. Thomas<sup>1</sup> explains this principle: "Things that are identical with one third thing are identical to each other, *if they are identical with one third thing in reality and in understanding.*" Do not understand this as if they were distinguished neither in tiling nor in understanding. The phrase, "in reality and in understanding" ought to be taken with "one third tiling," so that they are identical with one third thing that is one in reality and in understanding, *i.e.* it is not virtually or formally many. For in this way it can be identical with one extreme under one formality and with the other under another; and accordingly it does not follow that those extremes are identical with each other. In fact, this is the source of many paralogsms, because the middle is not perfectly and unqualifiedly one, but is many, at least virtually or formally. Hence the union of such a middle with the extremes, unless the union be under the same formal aspect, does not infer the union of the extremes with each other. For instance, this does not follow: *Whiteness is a relation, Whiteness is brilliant, Therefore a relation is brilliant*; because *relation* is identified with *whiteness* in one way and with *brilliant* in another. Hence it does not follow that they are identified with each other. And in terms used of God tins is not valid: *The Father is the divine essence, The Son is the divine essence, Therefore the Father is the Son.* The reason: the divine essence, in which they are joined together, owing to its infinite perfection is at once absolutely one thing and virtually manifold, and modified from a different viewpoint by the Persons, inadequately by any One.

#### Second Principle

The second principle is: "*Dictum de omni*," that is, "Whatever is said universally of a subject, is said of everything that is contained under such a subject." For instance, if it is affirmed of man universally that he is risible, it ought to be affirmed of any individual instance of man.

#### Third Principle

The third principle is: "*Dictum de nullo*," that is, "Whatever is denied universally of some subject, is denied also of everything contained under such a subject." For instance, if one denies of man universally that he is a stone, one ought to deny it of even- individual instance under man.

These principles are known per se, because the mark of a universal nature is this: to be applicable to everything respecting which it is universal. Now these principles do not operate for an expository' syllogism,

<sup>1</sup> Suw. *Theol.* I, q. 28, a. 3, ad 1.

which has a singular middle, but for a syllogism having a common middle. In the latter it is necessary' that discourse proceed on the strength of some distributed term; because if no term is distributed, the argument is from pure particulars. And this is a form of bad consequence, since through particulars the middle is not made to cover and contain perfectly those things to be inferred and joined together in the conclusion. But, given the distribution of the term, everything that is said or denied of it is, because of such distribution, also said or denied of that contained under it; consequently, what was denied or affirmed of a term distributed in the antecedent, is rightly concluded concerning that contained under it. And therefore those two principles operate to establish the necessity of the inference, not by arguing from pure particulars, but from distribution.

Hence it is that those syllogisms are called *perfect* that are regulated immediately by these two principles; because here we have the evident application of what is affirmed or denied universally to those things contained under the universal itself. Whereas the other modes are called *imperfect* that are not immediately regulated by these principles; nor is the application in question so evidently present. Rather, they are regulated mediately, and therefore are reduced to those perfect modes that immediately and evidently are regulated per se by such principles. The modes immediately regulated by these principles are the four of the first figure. For in them the middle is perfectly distributed in the major, where it stands as a universal in the subject position; and when later predicated in the minor, this very fact shows evidently that what it is predicated of is contained under its own universality; and consequently to that thing belongs what in the major was predicated or denied of such a middle universally given. And here *dictum de omni et de nullo* is immediately manifested, since it is shown immediately and per se that something is contained in or denied of such a subject taken universally, and this subject is the middle.<sup>2</sup> See below.<sup>3</sup> But in order to understand all this more clearly and at the same time to be able to perceive all the defects of bad consequence and of syllogisms, we must treat of the validity and of the defects of consequence, both in general and in particular.

## Ch a p. 11

## *The Principles That Found The Validity of Consequence*

### THE MOST UNIVERSAL PRINCIPLE OF VALID CONSEQUENCE

When it comes to regulating the validity of any consequence what-

<sup>2</sup>Lyons adds: "This does not happen in the other figures, where the middle is either predicated or subjected in both premises, or in the modes that conclude indirectly."

<sup>3</sup> *Log. I, q. 8, a. 4.*

ever, there is one most universal principle, from which the rest are derived and to which they are reduced. It is: "There cannot be in valid consequence a true antecedent and a false consequent, but if the antecedent is true, so also is the consequent." This principle is immediately reduced to the highest of all principles: "Anything is or is not," or "It is impossible for something to be and not be at the same time." For if the antecedent is true, the facts now are as signified by it. But if the consequent is false, it draws the antecedent along after it, owing to the connection that the truth of the consequent has with the truth of the antecedent. And therefore to posit a true antecedent and a false consequent is the same as to posit an antecedent that is true and partly false; because the consequent is a kind of part and something connected with it, and the consequence itself is a kind of connection. But what is partly false is absolutely not true. Therefore if the antecedent is true and the consequent false, the antecedent is true and not true; and these are contradictories.

On these principles, then, the validity of consequence is founded. And thus the whole task of pointing out the defects of consequences begins from the fact that an antecedent is true and its consequent false. And so what conduces more to the falsity of the consequent than of the antecedent, conduces to invalid consequence. On the contrary, what more readily conduces to the truth of the consequent than of the antecedent, builds up validity of the consequence. The reason is that the antecedent ought to contain in itself the truth of the consequent since this is inferred from the antecedent. Whence Aristotle too says: "that the premises ought to be more true than the conclusion," *i.e.* more certain. Consequently more ought to be required for the truth of the antecedent than for the consequent, since the antecedent is more true than the consequent. Therefore it ought always be more difficult for the antecedent to be made true than the consequent; for what requires more things is had with more difficulty. Wherefore, since consequence is nothing else than the inferential connection of one thing to another, and since the truth of the antecedent is not rightly connected with falsity of the inferred, or consequent, therefore the connection itself, or consequence, is rendered invalid whenever the antecedent is true and the consequent false.

#### Rules for Valid Consequence

This principle reveals several rules, which dialecticians give for validity of consequence. And usually there are six; we reduce them to three.

*I Anal. Post. I, 2, 72a 30.*

1. If the antecedent is true, so is the consequent also; and conversely, if the consequent is false, the antecedent is also. This is the very principle we laid down.

2. If the antecedent is possible, the consequent also is possible; and contrariwise, if the consequent is impossible, the antecedent is also. This rule is deduced from the first, because if the antecedent is possible, then it can be true; then also its consequent could be true. For if it is impossible that the consequent be true, in no case could it be true; however, since the antecedent is possible, in some case the antecedent can be true. Therefore in some case there would be a true antecedent and a false consequent.

3. If the antecedent is necessary, the consequent also is necessary; and on the contrary, if the consequent is contingent, so is the antecedent also. This rule is deduced from the same principle, because if the antecedent is necessary, it is always true and so far also the consequent ought always be true. Otherwise, in some case there could be a true antecedent and a\* false consequent. Hence if the consequent is contingent, which can be false, the antecedent cannot be necessary since the necessary is always true.

Understand nevertheless that a necessary consequent being always inferred from a necessary antecedent still does not require that the consequent be necessary in all respects. Rather, it is sufficient that the consequent be necessary under that viewpoint and aspect by which it is under the antecedent, and inasmuch as it is inferred from the antecedent; not however under another aspect. For instance, in this consequence: *God knows that Peter will sin, Therefore he will sin*, the consequent is contingent in itself and because of the relation to its proximate cause. Yet it is infallible as known by God and consequently as inferred from the antecedent; and this is so because God not only knows that Peter will sin, but knows that he will sin freely and contingently. Hence from this antecedent the inference is both that he will sin contingently and that this whole datum, *viz.* that he contingently will sin, is not subject to error.

## TWO OTHER HELPFUL RULES

Finally, from this principle two other rules follow, which operate for the validity of the consequence. 1. Whatever follows the consequent by valid consequence, follows from its antecedent. Customarily this is put in other words: that consequence is valid from first to last. And this is evident in itself.

2. Whatever is repugnant to the consequent by valid consequence, is repugnant to the antecedent too. Customarily this is put in other words: if the consequent follows from the antecedent, the opposite of the antecedent follows from the opposite of the consequent. The reason

is that if the opposite of the antecedent does not follow the opposite of the consequent, then the opposite of the consequent could stand with that antecedent, seeing that it does not infer the opposite of the antecedent. But the opposite of the consequent is false on the supposition that the consequent itself was true, *i.e.* inferred from a true antecedent. Therefore the falsity of the consequent could stand with the antecedent and thus you will have a true antecedent and a false consequent. And this rule governs us most frequently when we show the validity of the consequence by going from the contradictory of the consequent to the contradictory of the antecedent. Also, we use this rule in the reduction *per impossibile* of syllogisms; and cases which serve to show the defect of one consequence, serve also for that consequence where we proceed from an opposite to an opposite.

Ch a p. 12

### *The Sources of Invalid Consequence*

One gathers from the preceding chapter that there is a *single source* and root whence the defect and invalidity of consequence arise. It is: "Whenever the antecedent can be true and the consequent false, the consequence is invalid."

Since the consequence is the inferential connection of the two propositions, whenever the antecedent is true without the consequent being true, the connection is not valid nor formal, because one can stand without the other, or the truth of one without the truth of the other. But if one stands without the other, the connection is broken; therefore the connection and consequence is invalid because dissoluble. Hence it follows that whatever aids the truth of the antecedent more than of the consequent, conduces to invalid consequence, because it makes a true antecedent able to stand without the consequent. And conversely, what renders a false consequent more difficult than the antecedent, conduces to, or builds up the validity of consequence.

From these sources all defects of consequence can be drawn, so that the defect it labors under can be assigned to each consequence. In fact, Soto (*Summulae*, V) specifies seven intrinsic and just as many extrinsic defects in syllogisms. He calls those defects *intrinsic* which involve the middle; and these are called intrinsic because they render the premises untenable. On the other hand, he calls those *extrinsic* which involve the extremities by way of inferring conclusions, because they do not preserve the logical properties or the due disposition in quantity and quality, in distribution, etc. And nearly all intrinsic defects are reduced to this, that the middle is taken equivocally or is not completely, or perfectly, distributed; or the conditions and rules laid down above<sup>1</sup> are not

<sup>1</sup> Book III, chap. 6, above pp. 112, 113.

observed-e.g. the middle should not be more broad in its not-distributed than in its distributed use. And finally, for extrinsic defects, that they do not preserve in the extremes all the logical properties. These defects individually will be made plain in the next chapter.

## Ch a p. 13

## *The Individual Defects in Consequence*

For the purpose then of being able to classify the defects in consequence, notice that since there are only two kinds of consequence, *scil.* induction and syllogism, you can designate either the defects proper to each of the kinds or the defects common to both. They are *proper* defects when some established rule or requisite for valid induction or valid syllogism is violated. They are *common* when there is some defect in a logical property, such as supposition, restriction, ampliation, appellation, opposition, conversion. For these properties are common to induction and syllogism.

Briefly then we shall now present all the defects, whether proper or common; though here and there we have given nearly all of them in the preceding chapters.

### Defects Proper to Induction

In induction a defect is committed:

1. If affirmative copulative ascent takes place without sufficient singulars, the consequence is not formal. For it is possible that the instances that are not considered block it, except where the matter is necessary. And in this case the consequence is only materially valid. Concerning this see below?

2. Affirmative copulative descent without co-existence indicating the individuals it descends to, is not formal consequence. For instance, if you said, *Every man was a sinner, for example Peter, And that man was a sinner, etc.* But you ought to add: *And the former, c.g. Peter is or was;* this gives co-existence: *Therefore Peter teas a sinner.* Otherwise, if you indicate an individual not yet existing, but who will exist, the consequence is blocked.

3. Defects can occur if the rules are neglected that were given above concerning ascent and descent in the third chapter of this book. These defects are: if for a term supposing determinately, the ascent or descent is not disjunctive; if for one supposing distributively, not copulative ascent or descent; if for one supposing confusedly, not disjunctive or collected. Likewise, if for a term not supposing completely distributively there is complete copulative ascent and descent; for if the distri-

\* *Log.* I, q. 8, a. 2.

bution is incomplete, the descent ought to be incomplete also. For example, *Every animal was in Noah's Ark*; it is not valid, *Therefore this animal and that one*, when you point out individuals, but when you point out species.

4. When several terms come together in the same proposition, there is a defect in the very order of resolving them, if they are not resolved according to their own order, and not all equally immediately. Thus the order of resolution—or of ascending by means of induction, as we said in the chapter on Induction<sup>2</sup>—is such that first you ascend from the term supposing determinately; second from the term supposing distributively; third from the term supposing confusedly. But if you ascend from the term supposing distributively before the one supposing determinately, it is the defect called "*arguing from several determinates to a single distribution.*" For example, suppose you make this ascent: *Man is not this rational thing, And man is not this rational thing, etc., Therefore man is not rational.* The consequence is not valid, because that term *man* has determinate supposition referring to several singulars that are several determinates (all singulars indeed are determined); yet in the consequent it does not have supposition with reference to several determinates but with reference to a single thing under its common aspect. This defect appears sometimes in Theology; for instance, when one says, *Man can do this good work, Man can do this good work, Therefore man can do every good work.* Whereas, if all the terms in some proposition suppose determinately or distributively, any of them could equally be resolved immediately.

5. There is a defect in descent if you descend disjunctively from a term supposing merely confusedly before you descend from the term supposing distributively. For instance, this is not valid: *Every man is an animal, Therefore every man is this animal.* And this defect is called "*arguing from a simple distribution to several determinates,*" since you descend from an undistributed term just as if it were distributed.

Now at this point a difficult<sup>3</sup>—used to arise about those propositions which consists of a combination of terms in the nominative and oblique cases, as in *The horse belonging to the man, runs*, or *The mans horse does not run.* The possessive has the role of determination; the nominative that of determinable, since the possessive in a sense restricts the nominative so as to stand for a horse possessed. And many quite useless sophisms have been excogitated about the order of resolving those terms—we shall mention something about these later.<sup>3</sup> Meanwhile, we only briefly direct your attention to this, that there is an easier resolution than what Bañez gives (*Summulae*, IV, tr. 1, c. 3). It is, when the whole

<sup>2</sup> Book III, chap. 2, above pp. 104, 105.

<sup>3</sup> *Log.* I. q. 7. a. 2, arg. 5.



combination has one acceptance, *viz.* when the possessive, which is the determination, follows the determinable, the same resolution and supposition is due both terms, because that possessive is equivalent to an adjective. For it is the same to say, *The horse belonging to a man*, as to say, *The horse possessed by a man*. And thus it supposes and is resolved like a complex of substantive and adjective, because it is held by the same supposition. For just as in saying, *The horse, a white one, runs*, *white* supposes like *horse*; so in saying, *The horse possessed* or *The horse belonging to a man*, *possessed* and *belonging to a man* suppose like *horse*. Hence, if you say, *Any horse belonging to man runs*, you can descend immediately under *belonging to a man* by saying, *Any horse belonging to this man (viz. one possessing) runs*; provided you add or understand co-existence: *And this man possesses a horse*. For the term *belonging to man* is not distributed for every man absolutely, but for every man possessing a horse; just as in the same place *any horse* is not distributed absolutely but for every possessed horse. Wherefore *belonging to a man* does not there suppose confusedly, but distributively for those possessing a horse.

But when the whole complex has several acceptances because the possessive precedes, then any one term has its own special resolution according to its supposition and the signs affecting it, so that the first place goes to determinate supposition, then to distributive, then to confused. Which term in fact supposes determinately and which distributively, this one recognizes from the rules in the chapter on Supposition.\*

#### Defects Proper to Syllogism

The defects in syllogisms are:

1. If one argues with four terms. The reason is that the whole art of syllogizing consists in the connection of two terms to each other inferred from their connection with one third thing. Whence there ought not be more than two extremes, nor more than one middle. And so this is not valid: *Every man possibly is white, An Ethiopian is a man, Therefore an Ethiopian is white*; because the middle is not only *man* but *possibly*. And it all comes to this, the extremities ought to be the sum total of extremes; for if they are not the sum total, the argument has more than three terms.
2. The middle ought not to be taken equivocally, but with the same meaning in the premises. Otherwise you could not join the extremes to each other. For instance, this is not valid: *Every dog is a barker, Some star is a dog, Therefore some star is a barker*.
3. From only particulars nothing follows. We explained this above.<sup>5</sup>

<sup>4</sup> Book II, chap. 12, above pp. 67-69.

<sup>6</sup> Book III, chap. 6, above p. 112.

4. From only negatives nothing follows. This also was explained above.®

5. If the middle is not completely distributed in some one of the premises. Whence this is not valid: *Every animal was in Noah's Ark, Socrates is an animal, Therefore Socrates was in Noah's Ark.*

6. No term ought to be distributed in the conclusion that was not distributed in one of the premises. This was explained above' and it coincides with the defect of arguing from the undistributed to the distributed. Here also belong the defects of ampliation or of restriction, such as a middle should not have a broader acceptance when undistributed than when distributed.

7. If the middle comes into the conclusion, otherwise all syllogisms where the appellation is varied would be valid. For example, if you said, *Evert/ man is a creature, Christ is a Man, Therefore Christ is a creature in so far as He is a man. Every similarity is a quality, This quality is brilliant, Therefore this similarity is brilliant, inasmuch as it is a quality.*

8. If the particular rules, given above,® for the figures of syllogisms are not observed. For instance, that in the first figure the major proposition may not be particular; and the others explained in that place.

#### Defects Common to Any Consequence

The defects said to be common to every consequence, whether syllogistic or inductive, arise from some defect in the logical properties, as in supposition, ampliation, etc.

#### In Supposition

In supposition the defects are:

1. If the genus of supposition is varied in some consequence. And I say "genus," because the species can be varied, as when a determinate or particular supposition is inferred from a distributive. But the genus of supposition cannot be varied; for example, that a simple supposition be changed to personal, or a material to personal, etc. Because of this defect these consequences are not valid: *Man is a species, Peter is a man, Therefore Peter is a species; Man is a word, Every man is an animal, Therefore some animal is a word.*

2. From an undistributed to a distributed supposition the consequence is not valid; yet the other way around is valid. Thus this is not valid: *Some man runs, Therefore every man runs.*

3. From merely confused, not distributed, supposition to determinate supposition the consequence is not valid; yet the other way around is

\* *Lot. cit.*

' *Loc. cit.*

8 *Loc. cit.*

valid. Thus this is not valid: *Every man is an animal, Therefore every man is some determinate animal*. Still it is valid the other way around.

#### In Ampliation and Restriction

In ampliation and restriction, the second logical property, we have the mies of ampliation; and from these rules defects also of consequence are made clear.

1. When we proceed from the broad to the not-broad without distribution of the broad, the consequence is not valid.

2. It is a defect if we proceed affirmatively from the broad to the not-broad, even when proceeding with distribution of the broad, if the procession is without co-existence. For instance if you said, *Every man is white*, you could not immediately infer: *Therefore Peter is white*, unless you add co-existence: *and Peter exists*; otherwise the inference is false should Peter not be existing. And advisedly we said, "with distribution of the broad." For even with co-existence given, the inference will not be valid if the broad is not distributed. For instance, *Man possibly is white*, or *Every man possibly is white*, and *Peter exists*, *Therefore Peter is white*; *possibly* amplifies indeed, but does not distribute to the less broad, except under the one aspect of possibility. And so you should have inferred: *Therefore Peter possibly is white*; otherwise you argue affirmatively from potency to act. A sign of this is that if you put in *impossibly* or *necessarily*, which are distributing modes, the consequence is valid: *Man impossibly is white, Therefore Peter is not white*.

3. It is a defect if we proceed from the not-broad to the broad with distribution of the broad. For this is to argue from the undistributed to the distributed, which is always a defect. And to this one we also reduce the defect of proceeding from an incomplete to a complete universality or from complete particularity to incomplete, where the argument is always from the undistributed to the distributed, at least equivalently. We call universality incomplete when it is not perfectly distributed; complete when perfectly so. Conversely however, we call particularity complete when it is perfectly particularized, so that no universality remains; incomplete when it is not perfectly particularized but retains some universality. Examples: *Some animal was not in Noah's Ark*, is incomplete particularity, that is *No animal of some species was*; *Neither of two men runs*, that is *No one of some pair*. Here some universality is always joined to the particularity.

#### In Appellation

In appellation, the next logical property, all defects are reduced to this one. Whenever the appellation is varied, the consequence is not valid, whether the appellation be real, or of reason, or about terms sig-

nifying an act of the soul. For instance, these are not valid: *Peter is a big logician, Therefore Peter is big*; *Man is a species, Therefore Peter, a man, is a species*; *White is brilliant, Therefore a similarity, which white is, is brilliant*; *I know an approaching man, Therefore I know Peter who is approaching*. For an act of the soul always bears on its object under the precise formality that constitutes such acts. Hence these are not valid: *The one approaching I see, Therefore I see the one approaching*; *The Pope I saw, Therefore I saw the Pope*.<sup>9</sup> Nor is the converse valid, unless the appellation is the same in both cases, *i.e.* you take “inasmuch as approaching” and “inasmuch as Pope” under the same aspect of knowing, and not under another; otherwise, by varying the formal aspects of knowing there is room for many defects. And those who say that where terms signify acts of the soul there is valid consequence from a term having appellation to one not having appellation, do not on this account say that consequence is valid when the appellation is changed. They say that consequence is valid from the formal to the material, inasmuch however as the material stands under the formal. And this is true.

#### In Opposition

In opposition the rules are:

1. In contradictories when the truth of one is presupposed the falsity of the other follows, and conversely.
2. In contraries from the truth of one the falsity of the other follows; but conversely, from the falsity of one to the truth of the other, is invalid consequence; because contraries can both be false but not true at the same time.
3. In sub-contraries from the falsity of one the truth of the other follows; but conversely the consequence is invalid, because they can be true at the same time.

#### In Equipollents

Between equipollent propositions there is no defect. From an equipollent to an equipollent the consequence is always valid.

#### In Conversion

In conversion the rules are:

1. From the converted proposition to the converse there is always

<sup>9</sup>The reader can find these two examples explained in Book II, chap. 15. above pp. 78. 79. The point here is that with a verb expressing an act of the soul, there is ampliation on the object before the verb and appellation on the object after the verb. Thus each example exhibits an appellation in the conclusion that was not in the premise. Ordinary language bears this out. If I said, *The President of the United States I knew*, you would not take me to say definitely that I knew the man either before or during or after he was president. But if I said, *I knew the President*, you would expect me to add some specifying phrase, unless I meant I knew him while he was president.-Tr.

valid consequence. For example, *Every man is an animal, Therefore some animal is a man.*

2. The valid consequence of conversion is not mutual, except in simple conversions, but not in accidental conversions. Consequence is called *mutual* when it is valid, not only from the converted proposition to the converse, but also the other way around, from the converse to the one converted. Just as this is not valid: *Some white thing is a man, Therefore every man is white.* The consequence is from the converse to the converted proposition by accidental conversion of an affirmative universal. But the other way around the consequence is valid.

#### In Exponibles

In exponible, or resolvable, propositions the rules are:

1. From the exponible to all exponents or from the resolvable to all its resolvents and conversely, the consequence is valid, because it is from equipollents.

2. From an exponible or resolvable to any exponent copulatively there is good consequence. But conversely from an exponent to the resolvable there is a defect, because the first is from the copulative proposition to a part, the second from a part to the copulative.

3. From any disjunctive exponent to its exponible there is valid consequence, but conversely it is not valid. This is evident from the rule for disjunctives. Look up what we said in the chapter on exponible and hypothetical propositions concerning the individual rules for arguing.<sup>10</sup>

#### Ch a p. 14

#### *Fallacies*

St. Thomas wrote an opusculum, *Fallacies*, which is Number 39. And nearly everything that pertains to fallacies was explained by treating the defects of syllogism; for a fallacy is a defect of consequence.

Wherefore here we shall only indicate how the fallacies are reduced to those defects. Thus some fallacies pertain *to language*; some *to the thing signified*. The fallacies of language are reduced to equivocation; for this kind of fallacy grows out of the appearance that the word is the same either because: a) the same word has several meanings; b) one word is similar to another either in pronunciation or in meaning; or c) finally the very composition of the sentence has equivocation and amphibology, as takes place in sentences applied according to the composite and the divided sense; this is one of the fallacies of diction.

#### Fallacies Relative to Diction

All fallacies taking place relative to diction we reduce to equivoca-

\*" Boek II. chaps. 23, 24, above pp. 95-102.

tion, and there are six kinds of these fallacies. Three of them are in simple terms, viz. equivocation, diversity of accent and form of diction.

*Equivocation*, for example, if I inferred from the term dog that what applies to the animal applies to the star. *Diversity of accent*, for instance, if you take *desért* to be the same as *desert*, or *bow* as a weapon, when the vowel is long, for *bow* as an action, when the vowel is shortened.<sup>1</sup> *Form of diction* is the similarity of word or meaning with another word, as where a word that signifies the male seems to signify the female. For instance, if you said: A *white-colored substance is white (alba)*, Therefore a male person, who is a white-colored substance, is white (alba).<sup>3</sup> Again, where a word signifying a character, c.g. a difference, is changed into a *what*, i.e. into a species; or a *what* of such a kind signifying essence is changed into this thing. All of this pertains to form of diction.

Now with respect to sentences equivocation also takes place in three ways. Namely, a) in *amphibology* which renders doubtful the acceptance of a sentence; in composition and division, viz. when the composite sense is changed into the divided or conversely; b) when the sentence is false in the composite sense, called the *fallacy of composition*; c) when indeed it is false in the divided sense, called the *fallacy of division*.

#### *Fallacies Relative to Thing Signified*

Moreover, fallacies not relative to diction but relative to the thing signified are reduced to the other defects given above. And there are seven fallacies of this kind: fallacy of accident, fallacy from the qualified to the unqualified, fallacy of ignoring the issue, fallacy of begging the question, fallacy of the consequent, fallacy of false cause, fallacy of several questions as one.

The *fallacy of accident* is just about the same as change of appellation. For the fallacy of accident arises from the fact that something is signified as fitting two things that are accidentally one. And so the cause of this fallacy is accidental unity together with diversity. All this is difference of appellation or is reduced to it or to a diverse acceptance of the middle; for instance, *I know the one coming, Peter is the one coming, Therefore I know Peter*.

The *fallacy from the qualified to the unqualified* is reduced to the

<sup>1</sup> The text has these two examples: *pendere* (to hand down) and *pendere* (to cause to hand down) : *populus* (poplar tree) and *populus* (a political community). The examples that I substitute are equivalents in English of the Latin examples of the text.-Tr.

<sup>2</sup> This example has no equivalent in an uninflected language like English. To understand the example the reader need realize only that man (male) should be *aibus*, and a woman be *alba*. Not an equivalent, but yet an example in English is the suffix *able* in *movable* (able to be moved) and *desirable* (worthy of being desired).-Tr.

one from the undistributed to the distributed, or from the not-broad to the broad without co-existence and with distribution of the broad. For instance, if you said, *An Ethiopian is white as to teeth, Therefore he is unqualifiedly white.*

The *fallacy of ignoring the issue* is reduced to a defect of opposition, because some things appear to be opposed and are not, since the laws of opposition are not kept. For instance, if you said, *The house is closed at night and not closed in the daytime, Therefore the house is closed and not closed.*

The *fallacy of begging the question* is had when you suppose or assume what you ought to have proved. For instance, if you wished to prove that Socrates is the father of Plato and assumed as the middle, that Plato is the son of Socrates.

The *fallacy of the consequent* arises from the neglect of this rule: "Whatever follows the consequent of a valid consequence, follows its antecedent." For from the fact that we think something is consequent on and has a connection with another, we make an inference from that antecedent; whereas in the thing there is nothing conformed to it. And owing to this the fallacy of consequent is closely related to the fallacy of accident. For instance, if you said, *If one is a thief, he roves at night, But yo:- ove at night, Therefore you are a thief;* or arguing from the opposite of the consequent: *Everything generated has a principle, But the soul is not generated, Therefore it does not have a principle.*

The *fallacy of the false cause* takes place when you take as middle what is not truly a middle nor a cause joining the predicate to the subject, although it seems to be a cause. For instance, if you said, *Death is a corrupting, Therefore life is a generating, Therefore to live is to be generated, because death and life are contraries.* For this cause is no good; they are not contraries but privatives.

The *fallacy of several questions as one* is a deception arising from the fact that in a single question you ask about several things that require diverse answers. And therefore a single answer cannot do justice to the question; it must be distinguished. For instance, if you said, *Is not an Ethiopian a white man? Are not honey and gall sweet? Are man and horse rational animals?* For if you give a single affirmative answer, the inference against you is: *An Ethiopian is a white man, Therefore he is white.* On the other hand, if you answer negatively, the inference is: *Therefore he is not a man.* And therefore the question ought to be distinguished: that he is a man but not white.

